

**The Economic Impact of Community Development
Corporation Affordable Housing Production**

by

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This report examines the economic impact that nonprofit-produced affordable housing has on neighboring property values in Austin, TX. The assessed market values are used in a difference-in-differences regression model to determine whether houses in CDC target neighborhoods increased in value more than houses in comparable low-income areas between 1993 and 2000. The results indicate that CDC-produced affordable housing has a positive economic impact on the assessed market value of houses in the surrounding area.

Table of Contents

List of Tables	vii
List of Figures	viii
Chapter 1. Introduction	1
Chapter 2. Nonprofit Housing Organizations and Community Development Corporations	6
What are Nonprofit Housing Organizations?	6
The Goal of Economic Revitalization	8
The Evolution of CDCs	9
History of Austin	11
The Need for Affordable Housing	13
Austin CDCs	15
Conclusion	19
Chapter 3. Literature Review	26
The Appropriate Indicator of an Impact	27
Methods of Place-Based Impact Studies and Challenges to the Different Methods	29
Previous Research	30
Conclusion	36
Chapter 4. Methodology	41
Developing a Model	41
The Model	44
Data	50

Conclusion	53
Chapter 5. Analysis	57
Tract Level Results	57
Block Group Level Results	59
Individual Tracts Results	60
Chapter 6. Conclusion	70
Bibliography	72
Vita	76

List of Tables

Table 4.1 Basic Hedonic Market Value Model and Regression Results	47
Table 4.2 CDC Production	52
Table 5.1 Tract Level Model and Regression Results	58
Table 5.2 Block Group Level Model and Regression Results	60
Table 5.3 Individual Tract Model and Regression Results	61
Table 5.4 CDC Production by Census Tract	62

List of Figures

Figure 2.1 Map of CDC Production by Organization.....	21
Figure 5.1 Census Tracts.....	66
Figure 5.2 Census Tracts with CDC Production.....	67
Figure 5.3 CDC Targeted Census Tracts Percent Change Relative to Non-Targeted Tracts.....	68

Chapter 1. Introduction

Community Development Corporations (CDCs), and other nonprofit housing organizations, provide greatly needed services to the community. They not only provide affordable housing for low-income residents, but also work to improve the overall conditions of low-income areas. But what impact does CDC housing really have on the surrounding areas? This study is an effort to answer this question, to discover if nonprofit-produced affordable housing has an economic impact on the neighborhoods in which it is built.

The impact of CDC programs is difficult to measure for a number of reasons. For one, CDCs are a diverse collection of organizations that work towards their missions in different ways and provide a variety of community and social services. Community development is a broad goal, usually focused on changing the community from within, organizing residents to be politically active, and encouraging revitalization of a community. CDCs' missions are often not only to stimulate economic growth in an underserved area and provide affordable housing, but to promote neighborhood stability and a feeling of community, to help low-income people generate wealth, build assets, and find stable jobs, and to keep youth off the streets and improve their school performance. CDCs typically have numerous stakeholders to whom they are accountable, including board members, residents of the target area, and funders, which is often a collection of government entities and foundations. For these reasons, even identifying the goals and outcomes which a CDC is striving to accomplish can be difficult since there are multiple objectives. But even if clear goals can be identified, showing progress has been made on these goals often requires a combination of qualitative and quantitative data from various sources.

One approach to assessing a CDCs' impact on their target neighborhood is to show that there has been economic growth or improvement in the target area. But,

even if one can show there has been economic growth in an area served by a CDC, proving the CDC is responsible for the positive change is difficult if not impossible. A large number of factors could also be responsible for the growth, such as trends in the overall economy, city, county, or statewide economic development initiatives, other social services available in the area, substantial changes in the industrial make-up of the area (such as a large corporation moving in or out), or significant development by for-profit developers. Showing that the CDC is responsible for the improvement is also dependent on convincingly arguing that if the CDC had not invested in the neighborhood, a for-profit would not have filled that role. The strongest argument against this assertion is that the areas targeted by CDCs were targeted for the very reason that the for-profit development community had consistently overlooked the area, that these areas would not have needed the assistance of a CDC if for-profit developers were interested in investing in them. These issues make the argument for causality difficult even when economic growth is identified in a CDCs target area.

Another complication with establishing causality in CDC targeted neighborhoods is the problem of neighborhood selection bias. Many researchers who have attempted to measure the economic impact of various affordable housing developments have discussed this issue.¹ The complication stems from the fact that the target area may have been chosen for its unique characteristics which differentiate it from other neighborhoods in the city, and which could be correlated with the increase in the sales prices or assessed values of houses in the area. For example, the neighborhood may have specifically been chosen for its characteristics which are perceived as conducive to growth and development, which means it may be different from potential comparison neighborhoods in a significant way which could by itself explain the differences in the change in housing prices. This is why identifying an appropriate comparison area to serve as the counterfactual is critical to a robust analysis.

Despite the fact that complications in the analysis abound, showing that CDC affordable housing developments contribute to an increase the sales price or assessed value of houses in their immediate vicinity would be a powerful tool in advocating for affordable housing development and community development programs. A common component of N.I.M.B.Y.ism (Not In My Backyard arguments against affordable housing) is that the affordable housing will cause property values to fall. Positive results could demonstrate that this is a misperception, that affordable housing will not lower the property values in a neighborhood but may in fact increase them. Revealing a positive economic impact would also show that CDC investment is potentially helping low-income homeowners near the housing developments build assets by raising the value of their homes.

While raising the prices of homes in the low-income neighborhood could potentially lead to gentrification, as Avis Vidal argues “strategic investments in housing and other community assets [can also] recreate viable housing markets that will attract renewed flows of private investment,”² which will fulfill one of goals of most CDCs: “to get the for-profit and public sectors to do their jobs better.”³ There is a precarious balance between improving the economic standing of a poor community and retaining affordable housing for its low-income residents, so although an increase in the prices of houses is desirable, too much of an increase may make the area unaffordable for the low-income residents and contribute to gentrification.

While the evaluation of CDC impacts, specifically the economic impact, may still be in its infancy, the numerous studies discussed in Chapter 3 have contributed significantly to this type of research.⁴ Some of the methods presented in that chapter are quite sophisticated, and as the awareness of these new strategies grow, the field of econometric evaluation of CDCs should grow as well. None of these studies have looked at the impact of CDCs in Texas, or specifically Austin, however, as this project attempts to do.

This analysis compares the change in the tax assessed values of houses (as a proxy for neighborhood quality) in Austin between 1993 and 2000 in neighborhoods

with CDC-produced affordable housing and those without. A hedonic model is used to conduct ordinary least squares regression on the data. The results show that, holding a broad range of factors constant, the market values of houses in census tracts or block groups with more than one CDC-produced affordable housing unit increase more between 1993 and 2000 than houses in other low-income areas. While the results vary across census tracts and causality can never be proven beyond a doubt in a non-experimental setting, overall, this study shows that CDC-produced affordable housing has a positive economic impact on the neighborhoods in which it is built.

Chapter 2 presents an overview of the nonprofit housing sector, the goal of economic revitalization, and the evolution of CDCs in the United States. It also discusses the need for affordable housing in the United States and in Austin, presents a brief history of East Austin, and introduces each of the CDCs that produced housing in Austin prior to 2001. Chapter 3 reviews relevant literature on the subject and previous studies of the economic impact of affordable housing. Chapter 4 presents the methodology of the study - how the data was collected and prepared for the project, the development of the basic hedonic model and the difference-in-difference models, and presents the results of several models. Finally, Chapter 5, the analysis section, looks at what these results mean and the difference in the change of the assessed market values in the CDC target areas and the comparison areas.

Notes

¹ All of the following studies discuss the potential problem of neighborhood selection bias: Accordino et al., 2006; Galster et al., 2005; Schill et al., 2002; Smith, 2003.

² Avis C. Vidal, "Housing and Community Development," in *The State of Nonprofit America*, ed. Lester M. Salamon, (Washington, D.C.: Brookings Institution Press, 2002), p. 227.

³ Ibid.

⁴ See Chapter 3 for a discussion of these different studies. The four main studies discussed are Accordino et al., 2006; Galster et al., 2005; Schill et al., 2002; Smith, 2003

Chapter 2. Nonprofit Housing Organizations and Community Development Corporations

What are Nonprofit Housing Organizations?

Nonprofit organizations that focus on providing affordable housing are known by a number of names, including community development corporations (CDCs), community housing development organizations (CHDOs), neighborhood or economic development organizations, and the more generic label of nonprofit housing organizations (NHO). Avis C. Vidal asserts in “Housing and Community Development,” that these organizations can be split into two groups, area-wide nonprofit housing providers and community development corporations.¹ The distinction between these two groups is the area of focus. Area-wide nonprofit housing providers focus on large geographic areas. These organizations build affordable housing throughout the city, state, or even nation, as with Habitat for Humanity. One of the defining characteristics of CDCs is that they typically limit their focus to a neighborhood or a specific impoverished section of a city or rural county, although some target their housing and services towards specific populations, such as the homeless, the elderly, the disabled, or a specific racial or ethnic group.

CDCs produce numerous types of housing, from large multifamily apartment complexes to single family houses. They produce both houses for sale to low-income homebuyers and rental properties, which are often also managed by the CDC. In addition to new production, CDCs also rehabilitate older housing to improve the existing housing stock. Since CDCs typically target an inner city neighborhood, new construction is often infill, removing vacant lots or dilapidated housing in the process of producing new housing. However, CDCs sometimes build entire sections of new neighborhoods (as Rites of Passage Development did in the Walnut Creek neighborhood in Austin).

Another defining characteristic of CDCs, and related to their neighborhood target area, is that they are community-based organizations. Their limited geographic focus allows for them to be more connected to the community in which they locate. CDCs are typically community-driven and have a number of community residents on their board of directors. This aspect of CDCs is essential to their success in inner city neighborhoods where residents often feel betrayed by past revitalization efforts run by the federal government or local authorities which frequently tore down buildings but failed to rebuild the area.

While the primary focus of most CDCs is providing affordable housing, they often work on revitalizing an area from a number of other perspectives at the same time. Some CDCs also foster commercial developments in their target area through technical assistance and loans to new small businesses or by attracting businesses to locate offices or factories in the area to generate jobs. Most CDCs offer at least a few social services to their target area as well, such as classes for first time homebuyers, financial literacy education, after-school programs for youth, child care, job training, and community organizing.² Also, many of them advocate for responsible and community-driven revitalization of their communities, and funding sources for these activities.

While sharing these general characteristics, CDCs are a diverse group of organizations. Most CDCs have a small staff and modest operating budget, but based on the most recent survey of 100 Texas CDCs by the Texas Association of Community Development Corporations, the operating budgets ranged from \$0 (volunteer run organizations) to over \$17 million, with a median budget of \$262,885.³ These funds come from a number a sources, with federal dollars (both CDBG funds and HOME Administrative funds) supplying the largest portion, followed by project income and program fees (such as rental income), private foundations, corporate or bank donations, intermediaries (such as LISC), and a very small amount from the State of Texas Housing Trust Fund.⁴

The Goal of Economic Revitalization

As Avis C. Vidal succinctly states in “Housing and Community Development”:

In seriously disinvested neighborhoods, one of the CDCs’ goals is to get the for-profit and public sectors to do their jobs better. Vis-à-vis the private sector, the challenge is to use sustained, strategic investments in housing and other community assets to recreate viable housing markets that will attract renewed flows of private investment. Accomplishing this requires significant, strategically placed investments in housing sustained over a period of years. In neighborhoods with very high concentrations of poverty, it sometimes requires the production of housing for moderate-income homeowners to give the neighborhood more economic diversity and strengthen its political influence.⁵

CDCs aim to revitalize their target neighborhoods by removing rundown houses and vacant lots and putting new affordable housing in their places. By removing sources of blight that have a negative economic effect on a neighborhood and producing new affordable housing which increases the value of the neighborhood (at a minimum in terms of attractiveness), CDCs show the economic viability of the low-income neighborhoods which they hope will turn the tides and bring in private investment again. Part of improving the economic viability is improving the value of property in the neighborhood – raising the prices of houses. This is the double-edged sword of CDCs’ work. While part of their goal is to provide affordable housing to low-income residents, they also want to increase the value of property, and a balance must be reached between these two forces so that housing values increase, but not to levels that will lead to the gentrification of the neighborhood and make it unaffordable to historic residents.

Not only is economic revitalization of an impoverished neighborhood one of many CDCs primary goals, a case can be made that economic growth will lead to many of the other positive outcomes and goals for the community. This is indeed what many CDCs base their approaches to community development on – that their affordable housing developments will have positive spillover effects⁶ (effects of an

economic intervention that spillover and impact neighboring areas or units) and contribute to the overall economic stability of the distressed neighborhood. In addition, economic change can serve as an indicator that there has been an impact.⁷ For this reason, measuring the economic revitalization of a CDC-targeted area is one approach to measuring the performance of a CDC, and more importantly, the impact of their affordable housing developments.

The Evolution of CDCs

CDCs first appeared in America in the 1960s. Urban strife brought attention to the dismal conditions within many inner-city communities, and President Johnson's war on poverty brought the federal government's attention to the issue, along with federal funding. Community organizations also gained respect as legitimate and necessary means to address community problems.

At the turn of the century, industrialization turned inner cities, particularly Northern cities, into conglomerations of factories, offering employment to low-skilled immigrants and African Americans migrating from the South. Racist laws and realtor and banking practices, as well as federally funded public housing, led to significant segregation within inner cities, and often pushed minorities, most notably blacks into deteriorating neighborhoods.

By the 1940's inner city neighborhoods were already segregated by race and income, but the post-industrial period allowed the remaining middle and upper income whites to move out to the suburbs. Construction outside of cities boomed, new loan programs and subsidies gave more white families the capital needed to buy houses, and better transportation and widespread use of electricity allowed factories to move out of the central city.⁸ At the same time, more Blacks moved into cities in search of jobs, further increasing the spatial segregation. The move of industry to the suburbs decreased the investment in inner cities, while white flight led to a decreased tax base at a time when more services were needed. Federal housing policy further

increased the spatial concentration of low-income residents through inner city public housing projects with very high densities. The problem was exacerbated when residential segregation policies were lifted during the 1960s and 1970s, allowing wealthier African Americans to move into higher income neighborhoods, leaving the poorest in the inner city.

The creation of CDCs as community-based organizations focusing on economic development stems from a number of factors in the 1960s. President Johnson's War on Poverty, which focused on social and economic responses to a high poverty rate, and specifically the Economic Opportunity Act of 1964, was the impetus for the creation of community action agencies (CAAs). These agencies were community-based organizations working to promote self-sufficiency and providing numerous social services to the poor. Social protest movements of the 60s, especially the civil rights movement, highlighted the power of community organizations in influencing and even directing public policy. Poor, inner-city, predominantly black communities virtually exploded in several cities in the late 1960s, with tensions culminating in riots in several cities, most notably in Los Angeles, Detroit, and Newark. Inner city communities did not want urban renewal in the same manner it had been accomplished in the past, where blight removal had been the focus, but had not always been followed with new construction, leaving empty and abandoned lots throughout poor neighborhoods. These forces combined led to the creation of community-based organizations which would not only work to revitalize the physical structure of inner city communities, but would do so in a way that allowed residents to have a voice in the rebuilding.

In the past 20 years, the community economic development field has flourished. Since their beginnings in the 1960s, CDCs have slowly spread throughout the country and multiplied, especially during the 1980s and 1990s. The National Congress for Community Economic Development, the national network for CDCs and other economic development organizations, reported that as of 1998, there were as many as 3,600 CDCs nationwide, a 64% increase from their survey only four years

earlier, and these CDCs had produced more than 550,000 units of affordable housing to date.⁹

According to the Texas Association of Community Development Corporation's (TACDC) 2004 "Building a Future" report, there are more than 300 community development corporations (CDC) in Texas. Of the 100 who responded to TACDC's 2004 survey, most were formed in the 1990s.¹⁰ The responding CDCs produced over 7,500 new multifamily rental units and almost 10,000 new single-family houses through the end of 2003. The organizations are located throughout Texas, although the majority are located in the largest cities.

History of Austin

While Austin has consistently grown and become a fairly economically prosperous city over the past century, East Austin has not fared as well as the rest of the city. East Austin has, historically, been a disinvested area of the city. It has also historically been a poorer and more racially and ethnically diverse area of the city, which is linked to its history of disinvestment.

In the late 1800s, only two of the four main residential areas where freed Blacks settled in Austin were in East Austin, Masontown and Pleasant Hill.¹¹ But, in the early 1900s, segregation increased and East Austin became the African-American district through both self-selection and segregationist policies. David C. Humphrey notes in *Austin: A History of the Capital City*, that, "Black residents and newcomers alike gravitated to East Austin as it developed its own business, social, and religious life and became a haven from white oppression."¹² But it was segregationist policies that restricted African-Americans' choices which really lead to the concentration in East Austin, beginning with deed restrictions that prevented Blacks from settling in other areas of Austin. In 1928, the city council officially designated East Austin as a "negro district"¹³ in the city plan. Public services for Blacks were limited to the East Austin area and there were serious problems with inadequate and inferior services.

However, a diverse Black business district did develop to cater to the many needs of the community.¹⁴

In the 1930s, Hispanics began to congregate mostly in East Austin just south of the designated African American area and north of Town Lake. As it had been for African-Americans, Hispanics settled there both to satisfy the desire to live within a Hispanic community and due to polices which forced them into the East Austin area. Services for Hispanics were restricted to East Austin as they were for Blacks, with each group having their own schools, parks, and other community services. Hispanics also developed businesses to serve their community, most notably a large food industry including stores, restaurants, and Crescenciano Segovia's Austin Tortilla Manufacturing Company.¹⁵

In 1961, Interstate Highway 35 was built, splitting East Austin off from the central business district, and As David C. Humphrey notes in *Austin: An Illustrated History*, some people thought the placement of the highway was a conspiracy to cut off the Black and Hispanic neighborhoods in East Austin from the rest of the city.¹⁶ Community activists gradually brought improvements in public services and infrastructure to both the African-American and Hispanic areas of Austin, but segregationist policies and practices lingered through the 1960s. When these policies were lifted, however, wealthier residents moved into more expensive neighborhoods outside of East Austin leaving increasingly poor residents behind. As K. Anoa Monsho recounts in "East Austin to East End: Gentrification in Motion," Austin Revitalization Authority Chair Charles Urdy aptly noted that after desegregation "in Austin, as in virtually every inner city across the nation, desegregation and disinvestment caused these communities to crumble."¹⁷ The area was left with a high concentration of poverty, and was one of the lowest-income areas in the city.

Recent efforts have been made to encourage redevelopment in East Austin. In 1996, the nonprofit Austin Revitalization Authority (ARA) was created to revitalize the 11th and 12th street corridors in East Austin. In 2005, an area primarily composed of the East Austin zip codes 78702 and 78721 was designated as the Community

Preservation and Revitalization Zone (CPRZ), and was targeted for economic development initiatives. Gentrification has also become an issue recently as the redevelopment and the draw to the downtown area have attracted richer residents, driving up property values significantly over the past decade. The CPRZ was also created with the purpose of addressing the growing problem of gentrification.

In 2000, the median income in the East Austin area¹⁸ was on average only 58 percent of the median income for Austin and the poverty rate is almost twice as high as the rate for the city.¹⁹ The population of African Americans is twice as high in East Austin as in the rest of the city, and the population of Hispanics is almost twice as high.²⁰ In addition, only 63 percent of the population has a high school degree compared to 83 percent of the city, and only 17 percent of the population has a bachelor's degree compared to 40 percent of the city.²¹ As these statistics show, East Austin contains a poorer, more racially concentrated, and less educated population when compared to the rest of the city, which helps to explain the continuing problem of disinvestment.

The Need for Affordable Housing

Affordable housing is a growing problem in the United States. Housing that costs less than 30 percent of household income is considered affordable by the U.S. Department of Housing and Urban Development (HUD), and is the standard gauge of affordability.²² *America's Neighbors: The Affordable Housing Crisis and the People it Affects*, by the National Low Income Housing Coalition, states that in 2001, one-third of the nation's households had housing problems, including "substandard conditions, overcrowding, and housing costs in excess of 30 [percent] of household income."²³ The Joint Center for Housing Studies of Harvard University recently released *The State of the Nation's Housing 2005*. The report examines trends in housing, and comes to similar conclusions – in 2005, a third of households are paying more than 30 percent of their incomes for housing, and an eighth spends more than 50

percent of their incomes on housing.²⁴ The report also notes that these numbers “understate the true magnitude of the affordability problem because they do not capture the tradeoffs people make to hold down their housing costs,”²⁵ such as living in overcrowded housing or living far from where they work and paying more for transportation.

HUD’s website notes that “a family with one full time worker earning the minimum wage cannot afford the local fair-market rent for a two-bedroom apartment anywhere in the United States.”²⁶ The burden increased the most for the lowest income households, including “low-wage workers, elderly, and the disabled,” according to the Harvard Center’s study.²⁷ Although some of these households receive government assistance in one form or another, the “majority of the non-elderly have low-wage or part-time jobs that do not pay enough to cover the cost of decent housing.”²⁸

This is not only a problem facing the working poor however; it is increasingly spreading into the middle class. The Harvard Center study notes that “from 2000 to 2003, the number of middle-income households with severe housing cost burdens shot up by nearly one million.”²⁹ Renters and homeowners are both affected, although to differing degrees depending on the income level.³⁰

Austin may be one of the top cities in the country in many areas, but it has not avoided the affordable housing crisis. According to the Community Action Network, as of 2002, “Austin rents have increased 62% since 1990 and home prices have increased 113%, making Austin the most expensive housing market in Texas”³¹ The housing problems were especially bad in East Austin where the poverty rate is double that of the city as a whole according to the 2000 U.S. Census.

Housing affordability has become an increasing problem for a number of reasons. *The State of the Nation’s Housing 2005* discusses some of these reasons for an increase in households facing a housing cost burden. For one, there has been a decrease in the affordable rental housing supply. The report notes that housing affordable to low- and increasingly middle-income renters is decreasing because new

construction is aimed at higher-cost units while the supply is losing more low-cost units due to deterioration of the older housing stock.³² The report also argues that “At the source of the affordability problem is the structural mismatch between the large number of low-wage jobs that the economy is generating and the high costs of supplying housing.”³³ In addition, it states that house prices are rising faster than incomes, exacerbating an already unstable situation.³⁴ In “The Case for a Right to Housing,” Chester Hartman also faults the housing market, which he argues is too focused on profits and because of this focus, is unable to provide housing to meet the needs of the nation.³⁵ This is precisely the idea behind nonprofit housing organizations, that when the focus on profits is removed, low-income housing supply will meet demand, or at least come closer than in the for-profit market.

Austin CDCs

As of 2005, there have been 22 CDCs or other nonprofit housing providers in Austin, although a few are no longer in existence. The majority were formed in the late 1980s to mid-1990s. Based on their responses to TACDC’s 2004 production survey and interviews with the organizations, nine of these CDCs produced new housing or conducted major rehabilitations on housing prior to 2001: American Youthworks, Anderson Community Development Corporation, Austin Habitat for Humanity, Blackland Community Development Corporation, Blackshear Neighborhood Development Corporation, East Austin Economic Development Corporation, Foundation Communities, Guadalupe Neighborhood Development Corporation, and Rites of Passage Development. Austin Habitat for Humanity, Foundation Communities, and East Austin Economic Development Corporation are area-wide nonprofit housing providers since they all target the entire city (or large portions of it), but all were still included in the study. Two additional CDCs, Grant CDC and Empyrean Corporation, may have produced housing, but they are no longer in existence so any possible production could not be verified.³⁶ And finally, two

organizations that rehabilitated a limited amount of housing specifically for a target population before 2001 were excluded because of the specialized nature of their production (no general housing for low-income families). These were United Cerebral Palsy of Texas, who rehabilitated apartment complexes for disabled people, and Community Partnership for the Homeless, who also rehabilitated housing for transitioning homeless people. Since most of this data was collected from CDCs directly and, occasionally, from other sources of data that could not be verified by the CDCs, there is a potential for errors and omissions in the data. Following is a brief overview of each of the organizations and the affordable housing they produced. A map showing the production by agency is also included at the end of the chapter.

American Youthworks³⁷

Through American Youthwork's Casa Verde Builders program, at-risk youth have built 51 single family houses and two duplexes in East Austin. Between five and thirteen structures were built every year from 1993 through 2000. The organization identified their target area as East Austin but indicated that they have focused more specifically on the 78721 area and the Lincoln Gardens neighborhood. The production is spread throughout eight different census tracts, but is concentrated in one tract in the 78721 zip code. The organization reported that all of the houses and duplexes were sold to low-income first-time homebuyers.³⁸ While the organization does not target their production for a specific population other than low-income homebuyers, they have sold some of these homes to Vietnam Veterans, disabled persons, seniors, and transitioning homeless.

Anderson Community Development Corporation³⁹

Anderson CDC did not return a completed survey, however Austin Communities SDC, who produced the housing for Anderson CDC as part of the city of Austin's second Scattered Cooperative Infill Project (SCIP II), was able to provide

a partial list of production.⁴⁰ Based on these records, Anderson CDC produced 25 houses, ten in 1997 and fifteen in 1999. All of the houses are in East Austin between 11th and 12th streets in zip code 78702, and in one census tract. The houses were sold to low-income homebuyers.

Austin Habitat for Humanity⁴¹

Austin Habitat for Humanity can definitely be considered an area-wide nonprofit housing provider as opposed to a CDC since it is part of a nationwide organization and focuses on providing affordable housing throughout the city. The organization has built housing in nine different census tracts, but all of the properties are in East and Southeast Austin. Austin Habitat is the top nonprofit housing producer in Austin. They built 98 single-family houses between 1987 and 2000, one was a rehabilitation, but the rest were new construction. All of Austin Habitat's houses are sold to low-income homebuyers.

Blackland Community Development Corporation⁴²

Blackland CDC targets the Blackland neighborhood in the 78722 zip code in East Austin. The target neighborhood is in one census tract. They have built six duplexes and eight houses, approximately four of which were new construction, and ten major rehabilitations.⁴³ Four of the duplexes were built as transitional housing for homeless families, and one house is divided into six apartments for seniors. The rest of the housing they produced is for low-income families. All of the duplexes and single-family houses are rental units, owned and managed by Blackland CDC.

Blackshear Neighborhood Development Corporation⁴⁴

Blackshear NDC did not return a completed survey, however, TCAD's online 2006 appraisal rolls list a number of properties owned by the CDC. Blackshear NDC is listed as the owner of two duplexes and five houses. Based on the years built, it

appears that four of the housing units were new construction and three were rehab. All of the houses are in zip code 78702, and all but one are in one census block group, with the outlier in a neighboring census tract. Since this information was not verified by Blackshear NDC, there are possible omission and inaccuracies.

East Austin Economic Development Corporation⁴⁵

East Austin Economic Development Corporation (EAEDC) did not return a completed survey. However, a list of Community Housing Development Organization (CHDO) production in Austin 1995 and after, obtained from the City of Austin, Housing and Community Development Department, contains some information on the organizations affordable housing production. EADC rehabilitated (based on the years the houses were built in TCAD's rolls) six houses in 1999 in four zip codes throughout East and South Austin, with each house in a different census tract. Because of the large area EAEDC appears to focus on, they may more accurately be considered an area-wide nonprofit housing provider as opposed to a CDC. Since the organization is a certified CHDO and the six houses were not listed as owned by EADC in TCAD's rolls, they had to be sold to low-income families. This information was not verified by EADC and there are possible omissions and inaccuracies.

Foundation Communities⁴⁶

Foundation Communities may be considered an area-wide nonprofit housing producer since they concentrate on the entire city instead of a single neighborhood, but are more of a CDC in that they provide their residents with many services. The organization produced one apartment complex with 200 units in the South Austin 78748 zip code in 1999, in a census tract and zip code without any other CDC activity. Foundation Communities manages the apartment complex and provides a number of services for its low-income residents and the surrounding community.

Guadalupe Neighborhood Development Corporation⁴⁷

Guadalupe Neighborhood Development Corporation (GNDC) focuses on its namesake neighborhood, in central East Austin, in the 78702 zip code. GNDC has built six duplexes and 27 single-family houses between 1984 and 2000, with production in three census tracts. Fifteen of the single-family houses were sold to low-income individuals, while the remaining properties are owned and managed as rental units by GNDC. Fifteen of the structures were major rehabilitations as opposed to new construction.

Rites of Passage Development⁴⁸

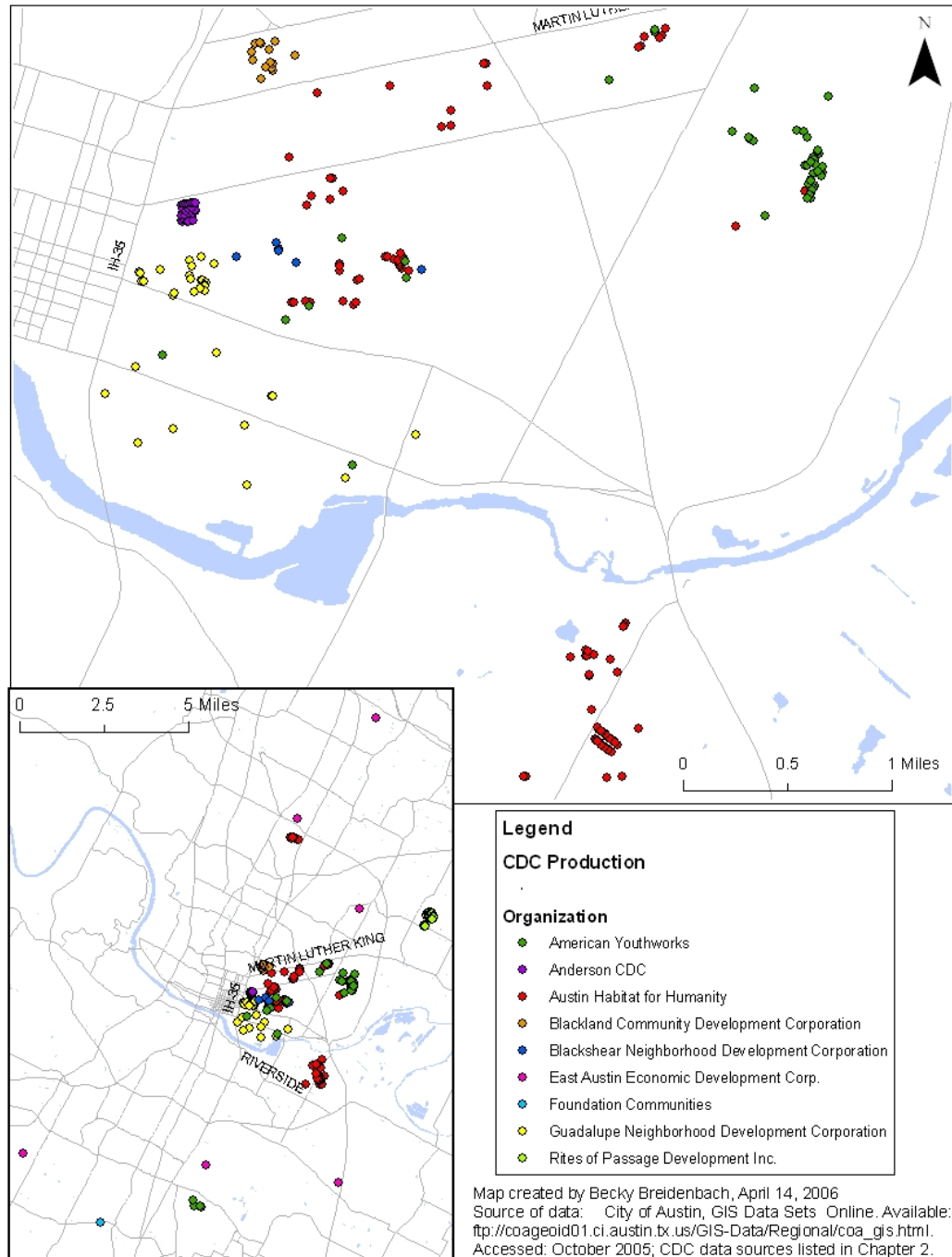
Rites of Passage Development was unable to provide information about their production, however Austin Communities SDC, who produced the housing for Rites of Passage Development, was able to provide a partial list of production. The organization built 90 single-family houses in the Meadows at Walnut Creek neighborhood in the 78724 East Austin zip code between 1995 and 1997. The houses were built on a series of contiguous blocks and are all in the same census tract and block group. The houses were all sold to low-income homebuyers.

Conclusion

CDCs may be a diverse body of organizations, but they share the common goal of providing affordable housing and working to revitalize low-income areas. CDCs throughout the country have proliferated throughout the past two decades, and have provided a much needed service to low-income people and neighborhoods. Through the construction of new housing and the rehabilitation of deteriorating housing stock in low-income areas, CDCs have not only created decent housing that is within the reach of many Americans who would otherwise be forced into overcrowded or unsafe housing or forced to pay an excessive portion of their income on housing, they have also invested in areas ignored by for-profit investors, and

helped to revitalize these neighborhoods. In Austin, CDCs have focused primarily on East Austin, the historically disinvested section of the city, and have accomplished a significant amount of production in the past two decades.

Figure 2.1
Map of CDC Production by Organization



Notes

¹ Avis C. Vidal, "Housing and Community Development," in *The State of Nonprofit America*, ed. Lester M. Salamon, (Washington, D.C.: Brookings Institution Press, 2002), p. 223-4.

² Texas Association of Community Development Corporations (TACDC), *Building a Future: the Contributions of Community Development Corporations in Texas*, vol. 4 (Austin, TX, 2005), p. 29.

³ Ibid, p. 13.

⁴ Ibid.

⁵ Vidal, "Housing and Community Development," p 227.

⁶ Ingrid Gould Ellen and Ioan Voicu, "Nonprofit Housing and Neighborhood Spillovers," *Journal of Policy Analysis and Management*, vol. 25, no. 1 (2006), p. 31. Online. Available: Wiley Interscience, <http://www3.interscience.wiley.com/cgi-bin/home>. Accessed: January 30, 2006.

⁷ Many studies look at the economic change to show an impact, including Accordino et al., 2004; Galster et al., 2004; Ellen and Voicu, 2005; and Smith, 2003.

⁸ Douglas S. Massey and Nancy A. Denton, *American Apartheid: Segregation and the Making of the Underclass* (Cambridge, MA: Harvard University Press, 1993), p. 44.

⁹ National Congress for Community Economic Development (NCCED), *Coming of Age: Trends and Achievements of Community-based Development Organizations*, (Washington, National Congress for Community Economic Development, 1998).

¹⁰ TACDC, *Building a Future*, p. 9.

¹¹ David C. Humphrey, *Austin: An Illustrated History*, (Northridge, CA: Windsor Publications, Inc., 1985), p. 68.

¹² David C. Humphrey, *Austin: A History of the Capital City* (Austin: Texas State Historical Association, 1997), p. 36.

¹³ Ibid.

¹⁴ Ibid, p. 38.

¹⁵ Ibid, p. 40.

¹⁶ Humphrey, *Austin: An Illustrated History*, p. 213.

¹⁷ K. Anoa Monsho, "East Austin to East End: Gentrification in Motion," *The Good Life* (November 2004). Online. Available: http://www.goodlifemag.com/archives/11-04/11-04_east.htm. Accessed: October, 2005.

¹⁸ East Austin is defined as the seven zip code area: 78702, 78721, 78722, 78723, 78724, 78741, 78744, and 78752.

¹⁹ U.S. Census Bureau, "American Factfinder" database. Online. Available: http://factfinder.census.gov/home/saff/main.html?_lang=en. Accessed: April 14, 2006.

²⁰ Ibid.

²¹ Ibid.

²² The U.S. Department of Housing and Urban Development (HUD), Community Planning and Development, *Affordable Housing*. Online. Available: <http://www.hud.gov/offices/cpd/affordablehousing/index.cfm>. Accessed: November 26, 2005.

²³ National Low Income Housing Coalition (NLIHC), *America's Neighbors: The Affordable Housing Crisis and the People it Affects* (February 2004), p. 2. Online. Available: <http://www.nlihc.org/pubs/index.htm#65million>. Accessed: November 25, 2005.

²⁴ Joint Center for Housing Studies of Harvard University, *The State of the Nation's Housing 2005* (2005), p.3. Online. Available: <http://www.jchs.harvard.edu/publications/markets/son2005/index.html>. Accessed: November 26, 2005.

²⁵ Ibid.

²⁶ HUD, *Affordable Housing* (online).

²⁷ Joint Center for Housing Studies, *The State of the Nation's Housing 2005* (online), p. 24.

²⁸ Ibid, p. 25.

²⁹ Ibid, p. 4.

³⁰ Ibid, p. 25.

³¹ Community Action Network, “Frequently Asked Questions About Homelessness” (December 2002). Online. Available: <<http://www.caction.org/issueareas/faqs/Homelessness>>. Accessed: February 22, 2006.

³² Joint Center for Housing Studies, *The State of the Nation’s Housing 2005* (online), p. 23.

³³ Ibid, p. 29.

³⁴ Ibid, p. 9.

³⁵ Chester Hartman, “The Case for a Right to Housing,” *Housing Policy Debate*, vol. 9, issue 2 (1998), p. 230. Online. Available: <http://www.fanniemaefoundation.org/programs/hpd/v9i2-index.shtml>. Accessed: November 27, 2005.

³⁶ I attempted, but was unable to contact former employees of both organizations.

³⁷ The information in the following paragraph on American Youthworks is from the Austin Affordable Housing survey created by Becky Breidenbach and completed 2/22/2006 by Dick Pierce from American Youthworks as well as from several email correspondences with Mr. Pierce. The data on the houses was cross-checked using TCAD’s online 2006 appraisal rolls, available at: <http://www.traviscad.org/>.

³⁸ I suspect both duplexes are rental properties as duplexes typically are (or at least half of the duplex usually is) and the owner is listed at a different address than the property in the online TCAD rolls for 2006. However, the owner listed is an individual, not American Youthworks, so it is possible the duplexes were sold recently. I was unable to confirm the owner status of the duplexes, and both are included as rental properties in the analysis.

³⁹ The information in the following paragraph on Anderson CDC is from multiple phone interviews with Randy Hughes of SDC Austin Communities, the builder who partnered with Anderson CDC in the project. The data on the houses was cross-checked using TCAD’s online 2006 appraisal rolls, available at: <http://www.traviscad.org/>.

⁴⁰ Based on TACDC’s production survey, it is possible that I am missing four rental units the CDC produced before 1994.

⁴¹ The information in the following paragraph on Austin Habitat for Humanity is from the Austin Affordable Housing survey created by Becky Breidenbach and completed 9/23/2005 by Rosca Toulouse, Director of Family Services from Austin Habitat for Humanity, as well as from several email correspondences with Ms. Toulouse. Some of the data on the houses was cross-checked using a list of CHDO production in Austin after 1995 obtained from the City of Austin, Neighborhood Housing and Community Development Department.

⁴² The information in the following paragraph on Blackland CDC is from the Austin Affordable Housing survey created by Becky Breidenbach and completed 10/2005 by Isabelle Headrick from Blackland CDC, as well as from several email correspondences with Ms. Headrick and Blackland CDC Board President Bo McCarver. The data on the houses was cross-checked using TCAD's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>.

⁴³ I was unable to have these final numbers confirmed when following-up on conflicting data.

⁴⁴ The information in the following paragraph on Blackshear NDC is from TCAD's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>. The information was not verified by the organization and may contain inaccuracies and omissions.

⁴⁵ The information in the following paragraph on EADC is from list of CHDO production in Austin after 1995 obtained from the City of Austin, Neighborhood Housing and Community Development Department. The data on the houses was cross-checked using TCAD's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>.

⁴⁶ The information in the following paragraph on Foundation Communities is from the Austin Affordable Housing survey created by Becky Breidenbach and completed 9/9/2005 by Walter Moreau from Foundation Communities.

⁴⁷ The information in the following paragraph on GNDC is from the Austin Affordable Housing survey created by Becky Breidenbach and completed 9/30/2006 by Mark Rogers from GNDC, as well as from several email correspondences with Mr. Rogers. The data on the houses was cross-checked using TCAD's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>.

⁴⁸ The information in the following paragraph on Rites of Passage is from multiple phone interviews with Randy Hughes of SDC Austin Communities, the builder who partnered with Rites of Passage in the project. The data on the houses was cross-checked using TCAD's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>.

Chapter 3. Literature Review

This chapter reviews relevant studies of the economic impact of place-based development initiatives and affordable housing production. The chapter will focus on why sales or assessed market value is the most widely used indicator of an economic impact, problems with this type of study that other authors have encountered and methods to overcome these problems, and the results and conclusions of other studies. The chapter should serve to give an overview of the field and previous findings on the economic impacts of community development projects.

A number of researchers have attempted to prove that CDCs provide a needed service to underserved communities and are responsible for the economic revitalization in their target areas. Recent studies have moved away from qualitative or output-based program evaluation towards a quantitative outcome-based approach or quasi-experimental design which can offer more concrete evidence of impacts and offer more support for causality (Higgins, 2001; Rossi, 1999). There are a number of ways the impact of a CDC can be defined and studied.

As Armstrong et al. present in “The Evaluation of Community Economic Development Initiatives,” there are two general types of evaluation design for program evaluation, both with their own benefits and short-comings.¹ One is a bottom-up approach, with information coming from people within the community who are directly affected, the results of which are used to show changes at the individual level.² Data collection is typically accomplished through surveys, often distributed both to those directly served as well as those not directly served by the CDC who function as the control group.³ While this type of evaluation allows for the collection of information on a wide range of qualitative data, it can be plagued by common selection bias issues: people who self-select to be involved in the CDC programs may differ from those who did not in ways that could be responsible for the changes, and people who respond to the surveys may not be representative of the

population at-large. In addition, using a bottom-up approach becomes more difficult and costly as the area being studied grows, and also, often cannot be generalized into neighborhood- or city-wide results. Conducting a random bottom-up evaluation is difficult for these reasons.

The other type of evaluation is a top-down methodology, consisting of reviewing secondary sources of information, such as census data and housing sales or value data.⁴ This type of evaluation looks at the big picture – the effect of CDC projects on the community as a whole instead of the benefits accrued to the individuals served – and offers more promise for determining the community-wide impacts and offering results which can potentially be applicable to other areas. This type of analysis typically employs a quasi-experimental design and hedonic regression analysis.

According to Wikipedia, hedonic means the object of observation is broken down into its different characteristics and an average value is estimated for each component.⁵ For example, the price of a house can be computed based on the quantity or type of each characteristic it contains (number of bedrooms, presence of a garage, lot size, etc.) and the prices of each of these components.⁶ Once a variable for the neighborhood or proximity to a CDC development is added to the equation, the value these characteristics add to the price of the house can be extracted.

The Appropriate Indicator of an Impact

The most common indicator used for showing a neighborhood-level economic impact is the sales price of houses, which is often used as the dependent variable in regression analyses. There are a number of indicators which could show whether there has been an economic impact in an area and which may be better indicators of wealth accumulation or changes in the population, such as average income, the number of vacant houses, or the rate of homeownership in an area. While many of these indicators could indicate economic growth, some, such as the average income or

rate of homeownership could be skewed by the effects of gentrification, occurring when higher income people move into the area and change the area average instead of the historic residents improving their financial situation. In addition, consistent data is not available on many of these indicators.

As Galster et al. state in “The Impact of Community Development Corporations on Urban Neighborhoods,” “Sales prices are the generally recognized proxy measure for many other indicators of neighborhood quality, such as crime and poverty rates, because these other aspects of neighborhood are *capitalized* into the value of its property.”⁷ Other similar studies also discuss the use of sales prices as the best indicator of neighborhood quality.⁸ There are, however, still potential pitfalls to using sales prices as the dependent variable. As Malpezzi points out in “Hedonic Price Models: a Selective and Applied Review,” sales prices include only houses that have sold, and the group is therefore not a randomly selected sample of houses.⁹ While there are some drawbacks, sales prices of houses are still the most widely used indicator in evaluations of the economic impact of affordable housing developments and place-based revitalization strategies.

One possible way to avoid this potential bias is to use the tax assessed values of houses. While the tax assessed value may not be as accurate as the sale price in terms of the actual value on the market, and may not react as quickly as the sales price to changes in the neighborhood, the group included in the dataset comes from the entire population of houses instead of only those properties that sell. In addition, the tax assessed value method can compare the same group of houses in two different time periods while sales prices in the pre-intervention period can only be compared with similar sales in the post-intervention period (unless only repeat sales data is used), and therefore the tax assessed value may be a better measure of change in some ways.

Methods of Place-Based Impact Studies and Challenges to the Different Methods

In a study by Accordino et al., George Galster, one of the authors, presents a comprehensive discussion of the problems with measuring “place-based revitalization initiatives.”¹⁰ Among the problems that complicate these studies, which Galster presents in his survey of the literature, are: the lack of clear pre- and post-intervention periods due to involvement over a number of years; delayed effects which do not occur immediately after an intervention; multiple actors and initiatives in an area, making assigning causality to one actor or initiative difficult, and; that the impacts may not occur only within the target area boundaries, but may also influence surrounding areas.¹¹

The most recent and robust studies trying to determine the economic impact of CDC housing developments are those that attempt to compare the target area of the development with a “counterfactual”¹² scenario in order to determine what the area would have looked like without the project. The counterfactual scenario can be accounted for in a variety of ways. First, the model must look at house values both before and after the CDC investment. A basic difference-in-differences model looks at the difference between house values in a certain area before an event (such as the construction of an affordable housing unit) and after an event, and compares that difference in sale prices with the difference in the sale prices of houses outside of the area of interest, but in a comparable control area. If the increase in house prices are greater within the area of interest than they are in the control area, which serves as the counterfactual, an argument can be made that the event is responsible for the difference.

If the target area is an entire neighborhood, a comparable neighborhood must be used for the control and any differences between the two neighborhoods must be accounted for in the model design. If the target area is smaller than the neighborhood, such as a certain distance perimeter around the housing development,

houses within the same neighborhood but outside of the circle around the new development can serve as the control area. This design reduces the need to account for all unobserved factors which could also be affecting the house prices in the target area because these factors should affect both the control and target areas, changing the housing prices in both areas the same amount. If the control and target areas are similar enough, the difference in the change of prices between the areas can reasonably be attributed to the impact of the CDC development (as long as there are no significant changes that affect only the CDC target area and not the control area).

A slightly more sophisticated (and data demanding) design is the interrupted time series method or “econometric trend”¹³ method, which uses data for a number of years before and after the event.¹⁴ With this method, a rate of change in the prices of houses can be calculated both before and after the event, in addition to changes in the base price of houses compared to other low-income neighborhoods.¹⁵ From this data, it can be determined whether the event caused a change in the base price of houses or in the rate of change of the prices. This method has rather extreme data requirements and can only be used in specific circumstances, discussed in more detail with the examples of this model below, which limit its usability. Studies using these different designs are discussed in more detail below with one or more examples of each.

Previous Research

Several studies that look at the economic impact of, or spillover effects from, the development of affordable housing in blighted areas focus on federally or locally subsidized housing development or community development initiatives in general, instead of looking only at nonprofit developers. A number of studies have been done on the effect of federally or locally subsidized housing on property values (Santiago et al., 2001; Ellen et al., 2001, Schill et al., 2002). A few more have looked at the impact of community development initiatives or investment in low-income neighborhoods in general (Accordino et al., 2005; Galster et al., 2004). All of the

above mentioned studies use the sales price of housing as the dependent variable and the methodologies used can be applied to the evaluation of CDC-produced housing.

Studies which look specifically at the economic impact of CDC investment in a community using an econometric model are limited. Ellen and Voicu, in “Nonprofit Housing and Neighborhood Spillovers,” compared the spillover effects of city-subsidized housing development by community-based nonprofits and for-profit developers in New York City and found that nonprofit developments have a positive spillover effect on surrounding property values which lasts longer than the effect from for-profit developments.¹⁶ Brent Smith, in “The Impact of Community Development Corporations on Neighborhood Housing Markets: Modeling Appreciation,” looked specifically at the economic impact of community development corporations on housing prices in Center Township, Indianapolis, IN, and found that areas served by CDCs saw a greater appreciation in housing prices than did the non-targeted comparison area.¹⁷ Accordino et al., in “The Impacts of Targeted Public and Nonprofit Investment on Neighborhood Development,” looked at the economic impact of city and nonprofit investments on housing prices in Richmond, VA, and find that the sales prices in target areas increased more than the prices city-wide.¹⁸ Edward Goetz, Hin Kin Lam, and Anne Heidinger, in “There Goes the Neighborhood? The Impact of Subsidized Multi-Family Housing on Urban Neighborhoods,” compared different types of subsidized multi-family housing in Minneapolis, MN, and found positive effects associated with nonprofit-produced housing.¹⁹ Paul Cummings and John Landis, in “Relationships between Affordable Housing Developments and Neighboring Property Values,” investigated the impact of six affordable housing complexes developed by nonprofits in San Francisco, CA, and found both positive and negative impacts.²⁰ And finally, George Galster et al., in “The Impact of Community Development Corporations on Urban Neighborhoods,” looked at the impacts of CDC-produced housing in five cities throughout the United States, and found positive impacts, but only some were statistically significant.²¹

The studies above show that there is a variety of research on different aspects or types of community development projects and affordable housing production. In addition, the results of these studies are varied, but most show there was a positive impact on the surrounding areas. Below, I conduct a closer examination of the most recent model designs that focus specifically on nonprofit and CDC-produced housing.

Difference-in-Differences Design

Neighborhood Level

Brent Smith's study, "The Impact of Community Development Corporations on Neighborhood Housing Markets: Modeling Appreciation," is an example of a simple difference-in-differences design. He compares the change in the sale prices of houses in the target neighborhood and control neighborhoods in the same township. Smith looks at the impact of community development corporation housing development on the appreciation of prices of nearby houses in Center Township in Indianapolis, Indiana. The data consists of 1,375 residential sales from 1987 and 1999-2000, "the unit of observation is the individual residence, and the dependent variable is the natural log of the selling price²² used as a proxy for market value"²³ Smith includes structural characteristics of the house, and "a vector of coefficients representing endogenous locational attributes,"²⁴ a necessary control since he is comparing changes in prices across neighborhoods.

This model compares the price trends in CDC targeted neighborhoods to those in a comparable neighborhood within the same township. The geographic units are U.S Census Bureau Housing Survey user-defined boundary (UDB) areas, which Smith states correspond with the boundaries of CDC target neighborhoods in Indianapolis²⁵ By comparing areas within the same township, Smith sought to "limit the exogenous, uncontrollable differences between CDC neighborhoods and the comparison area."²⁶

Smith used ordinary least squares regression to run his difference-in-differences model. He ran the model separately for each time period and for the two time periods together to test the robustness of the model, and both runs gave similar results, indicating the model was robust. His results show that the rate of appreciation (or change in house prices) between 1987 and 2000 was higher in the CDC target area than in the comparison area. Smith does, however, raise concerns about determining causality based on his findings, citing the numerous public and nongovernmental players whose unobserved actions could also have influenced the price changes. He also brings up the issue of spatial interaction (the exact placement of the house in relation to the city or amenities, as well as the interaction of a sales price with recent sales in the surrounding area) which could affect the results.

Smith comments in his conclusion that future studies could improve on the methodology by examining the effect of clustered investments and of the distance from the CDC housing unit on the appreciation rates. He also recommends comparing the impact of different CDCs based on their “organizational characteristics” to better understand “the relationship between nonprofit capacity and performance measurement.”²⁷

Proximity or Ring Level

In “Revitalizing Inner-City Neighborhoods: New York City’s Ten-Year Plan,” Schill et al. refine the difference-in-differences model to the micro-level approach Smith recommends. They examine the impact of rehabilitation and new construction of housing through New York City’s Ten-Year Plan on property values in the immediate vicinity of the investment. Specifically, they compare changes in sales prices of houses within a 500-foot ring of each subsidized development with the change in sales prices of houses in the same neighborhood and census tract but outside of the 500-foot ring. By comparing the prices of properties within a “micro-neighborhood” to prices within the same neighborhood (divided by census tracts), the

methodology “weeds out any systematic differences between the neighborhoods chosen for these housing investments and other locations and allows [them] to disentangle the specific effects of the city housing investments from the myriad other changes occurring across neighborhoods and properties.”²⁸ The variable for within certain proximity of the developments “will vary across census tracts and across time, which allows [the authors] to control for neighborhood conditions and local public services common to all properties within a census tract in a particular quarter.”²⁹

The authors found that the prices of houses within the 500-foot ring of subsidized development increased more than those not in the ring, but were still lower than those outside the ring. This positive impact was found to increase with the scale of the production (larger multifamily rental developments produce larger positive economic effects).

In “Nonprofit Housing and Neighborhood Spillovers,” Ingrid Gould Ellen and Ioan Voicu also refine the difference-in-differences model to the micro-level approach Smith recommends, specifically in a nonprofit context. They examine the impact of both for-profit and non-profit rehabilitated rental housing in New York City using the sales of properties as the indicator of an impact. They control for many variables which could cause a difference in impact, such as the type of housing, the size, whether it replaced a vacant building, and differences in areas. They use a variable for within a 1,000-foot ring of a development to see if there is a difference between sales within immediate proximity of a rehabilitation project and the surrounding census tract, which they use to define the neighborhoods. The authors found that both nonprofit and for-profit rehabilitated rental units generate “significant, positive spillover effects,”³⁰ however, the results showed that the positive effects from nonprofit projects were “stable over time, whereas the effect of for-profit housing decline[d] slightly with time.”³¹ They also discovered that while large developments by both types of developers generated similar results, smaller projects by for-profits had more of an impact than those of a similar size by nonprofits.³²

Interrupted Time Series or Econometric Trend Design³³

Accordino et al. in “The Impacts of Targeted Public and Nonprofit Investment on Neighborhood Development” attempt to contribute to the design of previous models by using an Adjusted Interrupted Time-Series method (AITS).³⁴ The authors contend that AITS is the “gold standard”³⁵ due to its strength “in dealing with the co-mingled problems that have plagued the ability to draw causal influences from prior methods, *establishing a convincing counterfactual and dealing with neighborhood selection bias.*”³⁶

Their study uses both quantitative and qualitative analysis and seeks to answer two questions about investment in neighborhood development: has there been an impact, and if so, why? In regards to the why question, they are specifically interested in, “the nature and scale of the community development investments that are correlated with the largest impacts.”³⁷ The AITS method, by looking at areas targeted by the City of Richmond’s Neighborhoods in Bloom initiative and areas not targeted for a nine year period before the investments and a five year period after the investments, can establish a clear before and after trend in each area and see not only whether the base house prices have changed in targeted areas, but whether the rate of change in these targeted areas has increased and if it exceeds the rate of change for the entire city. A variable for not in a target neighborhood, but within a 5,000-foot ring of the center of the target neighborhood is also included to determine whether the impacts of the investments spilled over into the surrounding areas.

The study found that home sales in target areas did increase at a faster rate than those city-wide. They also found that there seemed to be a “critical threshold;”³⁸ that house sales in blocks within the target area with investments over \$20,100 increased significantly more than those with less investment. And finally, they found evidence of spillover effects on house prices beyond the target neighborhoods.

The authors stress that “Impact analysis can provide more convincing evidence of true causal impact from an intervention (as opposed to spurious

correlation or selection biases) to the degree that underlying data meet three desiderata: they are measured over an extended period, both before and after the intervention being investigated; they are measured frequently within this extended period; [and] they are measured at a small geographic scale (at the limit, a precise geographic point).”³⁹ However, as Accordino et al. state, “Of course, most impact evaluations cannot acquire data that meet all these desired features, so they must settle for some method short of AITS.”⁴⁰

In “The Impact of Community Development Corporations on Urban Neighborhoods,” by George Galster et al., a similar methodology is used to examine the impacts of CDC-produced housing in neighborhoods in five cities throughout the United States: Boston, MA; Cleveland, OH; Denver, CO; Oakland, CA, and; Portland, OR. This study included a substantial qualitative component as well, based on interviews with numerous actors in the process regarding changes in the CDC target areas. The exact methodology of the quantitative research is not discussed in as much detail as in the Accordino et al. study, but they do state that they used an econometric trend method, which, as described, is very similar to the AITS method used in the Accordino et al. study. The method in this study compares the sales price changes in areas within one-quarter mile of CDC-produced housing with those one-quarter to one-half mile away and those not within proximity. The authors found that, based on the qualitative analysis, CDCs had positively impacted the target areas in all five cities. The quantitative analysis, however, only found statistically significant positive impacts in two of the five cities, Denver and Portland.

Conclusion

As discussed above, many studies have looked at the economic impact of various affordable housing projects. A number of different designs are used to investigate the economic impact, but they all use the sales prices of surrounding properties as the indicator of an impact and try to find a comparable area to serve as

the counterfactual in order to show that the change would not have occurred in the absence of the CDC investment. These different studies provide a number of designs on which to base future research. The results of these studies overall have shown that the various projects had a positive impact. Several of the studies have looked specifically at CDC-produced affordable housing developments, but none have investigated the impact of CDC-produced housing in Austin, Texas.

NOTES

¹ The definition of these two approaches is from H.W. Armstrong et al., “The Evaluation of Community Economic Development Initiatives,” *Urban Studies*, vol. 39, no. 3 (2002), p. 459. Online. Available: MetaPress, <http://www.metapress.com>. . Accessed: June 15, 2002.

² H.W. Armstrong et al., “The Evaluation of Community Economic Development Initiatives,” *Urban Studies*, vol. 39, no. 3 (2002), p. 459. Online. Available: MetaPress, <http://www.metapress.com>. . Accessed: June 15, 2002.

³ Ibid.

⁴ Ibid.

⁵ Wikipedia, *The Free Encyclopedia*. Online. Available: http://en.wikipedia.org/wiki/Hedonic_regression. Accessed: July 20, 2005.

⁶ Ibid.

⁷ George Galster et al., “The Impact of Community Development Corporations on Urban Neighborhoods,” The Urban Institute (June 2005) p. 3. Online. Available: <http://www.urban.org/publications/311217.html>. Accessed: January 30, 2006.

⁸ John Accordino et al., “The Impacts of Targeted Public and Nonprofit Investment on Neighborhood Development,” (Richmond, VA, Community Affairs Office of the Federal Reserve Bank of Richmond, 2005) p. 23. Online. Available: http://www.richmondfed.org/community_affairs/topical_essays_and_resources/reports/nib_research.cfm. Accessed: March 2, 2006; and Michael H. Schill et al., “Revitalizing Inner-City Neighborhoods: New York City’s Ten Year Plan for Housing,” *Housing Policy Debate*, vol. 13, issue 3 (2002), p. 531. Online. Available: <http://www.fanniemaefoundation.org/programs/hpd.shtml>. Accessed: June 30, 2005.

⁹ Stephen Malpezzi, “Hedonic Price Models: a Selective and Applied Review,” in *Housing Economics and Public Policy*, eds. Tony O’Sullivan and Kenneth Gibb (Ames, IA: Iowa State Press, 2003), p. 78.

¹⁰ Accordino et al., “The Impacts of Targeted Public and Nonprofit Investment” (online), Appendix C, p. 76.

¹¹ Ibid, p. 76.

¹² Galster et al., “The Impact of Community Development Corporations” (online), p. 3.

¹³ Ibid.

¹⁴ According to Accordino et al. in “The Impacts of Targeted Public and Nonprofit Investment on Neighborhood Development,” this method was first used to measure the “impacts of place-based local development strategies” in “Measuring the Impacts of Community Development Initiatives: A New Application of the Adjusted Interrupted Time-Series Method,” by George Galster et al., (December 2004), p. 502.

¹⁵ Galster et al., “The Impact of Community Development Corporations” (online), p. 21.

¹⁶ Ingrid Gould Ellen and Ioan Voicu, “Nonprofit Housing and Neighborhood Spillovers,” *Journal of Policy Analysis and Management*, vol. 25, no. 1 (2006), p. 31. Online. Available: Wiley Interscience, <http://www3.interscience.wiley.com/cgi-bin/home>. Accessed: January 30, 2006.

¹⁷ Brent C. Smith, “The Impact of Community Development Corporations on Neighborhood Housing Markets: Modeling appreciation,” *Urban Affairs Review*, vol. 39, no. 2 (November 2003), p. 181-204. Online. Available: Sage Publications, <http://www.sagepub.com>. Accessed: July 12, 2005.

¹⁸ Accordino et al., “The Impacts of Targeted Public and Nonprofit Investment” (online), p. iii.

¹⁹ Edward Goetz, Hin Kin Lam, and Anne Heidinger, “There Goes the Neighborhood? The Impact of Subsidized Multi-Family Housing on Urban Neighborhoods,” Working Paper 96-1 (Minneapolis: Center for Urban and Regional Affairs, 1996).

²⁰ Paul Cummings and John Landis, “Relationships between Affordable Housing Developments and Neighboring Property Values,” Working paper no. 599 (Berkeley: Institute of Urban and Regional Development, University of California, 1993).

²¹ Galster et al., “The Impact of Community Development Corporations” (online), p. 3.

²² The natural log of the sales price is the conventional way of using this variable since it helps to reduce the skew of the sales price.

²³ Smith, “The Impact of Community Development Corporations” (online), p. 191.

²⁴ Ibid, p. 192.

²⁵ Ibid, p. 201, endnote 1.

²⁶ Ibid, p. 186.

²⁷ Ibid, p. 200.

²⁸ Schill et al., “Revitalizing Inner-City Neighborhoods,” p. 551.

²⁹ Ibid.

³⁰ Ellen and Voicu, “Nonprofit Housing and Neighborhood Spillovers” (online), p. 31.

³¹ Ibid.

³² Ibid.

³³ Galster et al., “The Impact of Community Development Corporations” (online); and George Galster et al., “Measuring the Impacts of Community Development Initiatives: A New Application of the Adjusted Interrupted Time-Series Method,” *Evaluation Review*, vol. 28, no. 6 (December 2004), pp. 502-538. Online. Available: Sage Publications, <http://www.sagepub.com>. Accessed: June 6, 2005.

³⁴ The authors state that this method was first used to measure the “impacts of place-based local development strategies” in “Measuring the Impacts of Community Development Initiatives: A New Application of the Adjusted Interrupted Time-Series Method,” by George Galster et al., (December 2004), p. 502.

³⁵ Accordino et al., “The Impacts of Targeted Public and Nonprofit Investment” (online), p. iii.

³⁶ Ibid, p. 22-23.

³⁷ Ibid, p. 22.

³⁸ Ibid, p. iii.

³⁹ Ibid, p. 23.

⁴⁰ Ibid.

Chapter 4. Methodology

As discussed in the previous chapter, there are a number of different methodologies that can be used to investigate the economic impact of place-based revitalization strategies and affordable housing developments. The choice between these methodologies and the development of a regression model depends not only on theory, but also on what data is available for the study. In this chapter, I discuss the design of the econometric model, the data collection methods, and the process of analysis. The final hedonic model and difference-in-differences models are presented. The models were designed based on numerous studies discussed in Chapter 3. These models were changed as needed to investigate the impact of CDC affordable housing in Austin, TX.

Developing a Model

While AITS, or the econometric trend method, (presented in the Accordini et al. and Galster et al. studies discussed in Chapter 3) may be the “gold standard,”¹ the strict requirements on the data severely limit the circumstances in which the model can be used. Ideally, the model would be used to determine the impact of a brief, targeted intervention in specific areas of a city. However, in Austin, a handful of CDCs have been in operation since the early eighties and have produced numerous developments throughout the years; therefore, selecting clearly defined pre- and post-intervention periods city-wide is virtually impossible. In addition, CDCs have targeted many of the low-income neighborhoods in Austin, which makes it difficult to identify control neighborhoods with which to compare.

Another challenge in applying these various models to study Austin is that data on house sales was not collected in Austin before 1995, and the data that has been collected since is owned by the Austin Board of Realtors and was not affordable with the budget of this project. Due to this constraint, house sales data could not be

used in this study as it has been as every other study reviewed in Chapter 3. Instead, tax assessed data is used, obtained from the Travis Central Appraisal District (TCAD).² According to the Texas Comptroller of Public Accounts, the tax assessed market value is “an estimate of the price a home would sell for on January 1 [of that year]. The appraisal district compares a home to similar homes that have sold recently and determines the home’s value.”³ Although, as discussed in Chapter 3, the tax assessed value may not be as accurate as the sale price in terms of the actual value on the market, and may not react as quickly as the sales price to changes in the neighborhood, it is reasonable estimate of the true market value and captures a much larger population of houses instead of only those properties that sell. This measurement error in the dependent variable is not a cause for great concern however, since, unlike measurement errors in the independent variables, the only consequence, according to Damodar N. Gujarati in *Basic Econometrics*, is that the “estimated standard error of the coefficients tend to be larger.”⁴ In addition, by using the tax assessed value, the exact same group of houses (excluding those with any improvements in the interim years) can be compared in both time periods, while if using sales data, unless only repeat sales are used, only similar sales can be compared. Therefore, in some ways the tax assessed value may be a better measure of change, and must suffice due to the unavailability of sales data in the Austin area.

The tax assessed values are calculated based on a number of variables collected for each property, as well as current sales data available to the appraisal district. The sales data is used to adjust the market values on a neighborhood-wide basis. This means, however, that the proximity or ring model cannot be used since houses within the same neighborhood will not differ from each other based on sales in their immediate vicinity, due to the nature of the neighborhood-wide adjustment. So, although the ideal model would use the proximity method to compare house sales or values within a certain proximity to a CDC-produced affordable house with those in the same neighborhood but not in the proximity, this method will not work with the tax assessed data.

The proximity method may also have been hampered by the clustering of CDC houses. The CDC developments were mapped using ArcView, and there were a number of areas where a CDC had produced every house on a few contiguous blocks. The clustering would not only have made it difficult to find sales in the immediate vicinity (since CDC house sales could not be used), and because every sale would have to include a variable for the number of CDC houses it was close to. This would have been especially difficult to accommodate in a model since many of these houses were built in different years, so potentially, a sale could be within the vicinity of 15 houses, built by different CDCs, of different types (single family versus duplex) and ownership status, and built one house a year between 1990 and 2000. These many difficulties prevented the proximity model from being used in this study.

The model adopted here adapts Smith's model in "The Impact of Community Development Corporations on Neighborhood Housing Markets." The change in assessed market values in census tracts and block groups with CDC production is compared to the change in market values in other low-income tracts and block groups without CDC investment, as well as the city as a whole. These tracts and blocks without production serve as the comparison areas. The comparison areas may not have the exact characteristics (size, location relative to city, economic factors, income levels, type of housing, etc.) as those with CDC investment. This is one of the biggest problems with studying the impact of CDCs on their target areas, as it is with other place-based studies, that there is a potential for a selection bias – CDC neighborhoods were selected for investment because they differed from other low-income areas.⁵ This increases the chances that there are unobserved factors that could affect the two areas differently.

As Smith argues in "The Impact of Community Development Corporations on Neighborhood Housing Markets," "CDCs are but a single unit in a garrison of public and nongovernmental entities working to combat urban decay in Indianapolis's [and Austin's] more degraded areas. Controlling for the involvement of other organizations in a parsimonious model would be a daunting proposal and would

likely dilute the value of the findings.”⁶ While controlling for all other investment in CDC target areas and the comparison areas would indeed be a difficult task, city initiatives that could impact any of the involved areas were researched in order to strengthen the case for causality. The only major city project that focused on East Austin in the 1990s was the creation of the Austin Revitalization Authority (ARA) in 1995 whose purpose was to revitalize the 11th and 12th street corridors. However, the ARA did not complete any projects in the area until 2001, and focused on a very small area. Therefore, the impact of the ARA on property values in the area is not likely to interfere with this study.

The Model

The Basic Hedonic Model

The first step was to estimate a simple hedonic price model and test if it captures most of the variation in house sales prices (based on a relatively high R^2 value and significant variables). The dependent variable, the assessed market value of the house (MV), was transformed to the natural log. This transformation is the conventional way the sales price is used in such studies, and helps to reduce the skew of the dependent variable on the regression by tightening the range of the observations.

A number of characteristics of the properties were included in the hedonic model. The year of the assessed value is included since allows the value for each house to change between 1993 and 2000. The age of the house affects the price because new houses typically are worth more than older houses due to depreciation. The other housing characteristics were included because it is assumed that the presence of the various characteristics would have an impact on the value of the house. For example, the presence of central air conditioning or a garage should increase the value of a house.

The following independent variables were used in this equation: age of the house (Age),⁷ square feet of living space (Area), number of bathrooms (bthrm), presence of a garage (gar), presence of central AC (AC), presence of a porch (porch) or deck (deck), presence of fireplace (firep), presence of a pool (pool), two or more floors (twoflrsp), and the year of assessment (Yr in the hedonic model and captured in the impact area variables in the difference in differences model as discussed below). These variables were selected based on an analysis by Ayse Can in “Modeling Spatial Variation in Housing Price Determinants: With Special Reference to Columbus, MSA,” in which she used stepwise regression to determine what variables led to the highest R² for the price model.⁸ One variable, presence of a basement, was dropped from her list since very few houses in Austin have basements. Also, a few variables in Can’s model were not available in, or extractable from, the tax assessed data: lot size, number of bedrooms, and type of exterior (stone, brick, vinyl siding, etc.).⁹ The age of the house was added based on numerous other hedonic models which include this variable and presence of a pool and two or more floors were added as well.

In addition to the variables above, a number of locational variables were added to the equation, based on literature that argues that the spatial location of a house will greatly affect the price due to the differing characteristics across space (such as distance from city center, school district, and distance to shopping, parks and other amenities). The distance from the city center was added (the center of the city was defined as the intersection of Sixth and Congress Ave., since this is the heart of downtown).¹⁰ Also, Accordino et al. include the X and Y coordinates from ArcGIS, which they state are normalized.¹¹ In their equation, they include variables for X, Y, X², Y², and XY. Based on this model, the x and y coordinates, which are the coordinates of the projected map (measured in feet in the map projection used in this study), were included, but were recalculated as the distance east, west, north, and south from the center of the city (A and B). Several variations of the basic model were run, and the one with the same specification as the Accordino et al. model (both X and Y, which are A and B in the model, A², B², and AB) had the highest adjusted

R² score. These geographic coordinate variables allow the impact of the distance from the center of the city, and the placement relative to the center of the city (East, West, etc.) to have a nonlinear trend.

Basic Hedonic Model

$$\ln MVal = \beta_0 + \beta_1 Yr + \beta_2 Age + \beta_3 Area + \beta_4 Twoflrsp + \beta_5 Bthrm + \beta_6 Gar + \beta_7 AC + \beta_8 Porch + \beta_9 Deck + \beta_{10} Fp + \beta_{11} Pool + \beta_{12} Dist + \beta_{13} A + \beta_{14} B + \beta_{15} A^2 + \beta_{16} B^2 + \beta_{17} AB + e$$

The model was estimated with three datasets: 1) the entire city (containing 198,002 observations, 99,001 for 1993 and 2000 each), 2) a seven zip code area which consists of all zip codes containing more than five CDC housing units (78702, 78721, 78722, 78724, 78741, 78744, and 78752; containing 35,782 observations), and 3) the three central East Austin zip codes only (78702, 78721, and 78741; containing 18,102 observations total). The results varied slightly based on the dataset used, but not significantly indicating that the model is robust.¹² The results of the regression for the seven zip code area are presented in Table 4.1.

In a log-lin model, the coefficients of continuous variables can be interpreted as the percent change in the market value of the house for each unit change in the variable, or the elasticity. The coefficients of dummy variables can not be interpreted in the same manner.¹³ However, using an equation recommended by Halvorsen and Palmquist, in “The Interpretation of Dummy Variables in Semilogarithmic Equations” (semielasticity = 100*[e^(coefficient) - 1]), the coefficients of dummy variables can be interpreted as the semielasticity – the percentage change in the market value of the house related to the variable in question.¹⁴

Since I was working with a cross-sectional dataset with potential spatial heterogeneity¹⁵, I plotted the residuals to check for the presence of heteroskedasticity. There was some evidence of heteroskedasticity, so I used the ACOV switch to obtain the corrected variance covariance matrix so I could calculate White’s corrected standard errors, which are the standard errors included below.

Table 4.1
Basic Hedonic Market Value Model and Regression Results

Variable	Parameter Estimate	Standard Error	t-value	Significance
Intercept	9.62867	0.02743387	350.98	<0.001
Yr	0.94966	0.004215815	225.26	<0.001
Age	-0.00676	0.000254989	-26.51	<0.001
Area	0.00076511	1.01317E-05	75.52	<0.001
Twoflrsp	-0.20445	0.012573961	-16.26	<0.001
Bthrm	-0.07043	0.005736698	-12.28	<0.001
Gar	0.2815	0.004971378	56.62	<0.001
AC	0.16589	0.00670514	24.74	<0.001
Porch	0.0552	0.005841849	9.45	<0.001
Deck	0.04881	0.012758534	3.83	<0.001
Firep	0.17654	0.005469954	32.27	<0.001
Pool	0.03123	0.020379328	1.53	>0.1
Dist	0.00001942	1.65819E-06	11.71	<0.001
A	-0.00007266	1.5054E-06	-48.27	<0.001
B	0.00003027	4.23357E-07	71.5	<0.001
A2	1.375E-09	5.70472E-11	24.1	<0.001
B2	-2.3685E-10	4.03745E-11	-5.87	<0.001
AB	-1.8919E-09	4.6488E-11	-40.7	<0.001
Observations	35,782			
Adjusted R ²	0.7492			

A few of the coefficients had unexpected values. Age has a positive coefficient when data for the entire city is used, despite the fact that one would assume the price would decrease with the age of a structure. It is possible that this unexpected result is due to the fact that many of the older houses in Austin are in higher priced neighborhoods close to the city core which cause this variable to have a positive effect. When the model was run using the three and seven zip code datasets, age had a negative coefficient, which could support the theory above since these zip codes do not include the high-priced older neighborhoods in central and West Austin. Bathrooms also have a negative coefficient, which goes against the expectation that more bathrooms would increase the market value of a house. One possible explanation for this is that the variable should be included as bathrooms per square feet. Another explanation is that the few houses with more than three bathrooms may

have thrown off the trend since the value will not increase linearly with the number of bathrooms after a certain number.

Also, while all of the house characteristic variables were significant when run with data for the entire city, they were not all significant when run with the smaller datasets. The variable for a pool was insignificant for all of the smaller datasets. The coefficients for a deck and for the A variable (a measure of east and west from the city center) were both insignificant when run with data for the three zip code area. Since these variables were not the critical variables, the insignificance should not pose a problem.

Difference in Differences Model

In addition to the variables above, the difference in differences model includes dummy variables to indicate whether the house is located in a census tract (IN_Tr_93 and IN_Tr_00) or in a block group (IN_BG_93 and IN_BG_00) in 1993 or 2000 which has had more than one CDC development before 2001. A variation of this model includes separate dummy variables for each census tract (for example T802_93 and T802_00 for tract 8.02) so the difference in each CDC invested census tract can be examined separately. This allowed for the consideration of the total amount, type, and concentration of CDC developments in the area, as well as the location of the area relative to other neighborhoods, when analyzing the initial market values and changes between 1993 and 2000 in the various census tracts and block groups. A variable for outside of a CDC tract or block group in 2000 (OUT_Tr_00 and OUT_BG_00) was also included, so the difference between values in 2000 and 1993, which serves as the baseline or intercept, can be seen.

Census tracts or block groups with more than one development were used since only one development is not likely to impact an entire neighborhood. This meant a few CDC developments were not analyzed, including the one large apartment complex built by Foundation Communities in South Austin. This apartment complex

was also located in southwest Austin, in a zip code without any other CDC investment and with a higher average income than any of the other target areas. This area would not have served as a good comparison area for these reasons.

Although the tax assessed values from TCAD are calculated with a neighborhood variable, TCAD's neighborhood definitions were not used for a number of reasons. While the TCAD defined neighborhoods often correspond with the census block group boundaries, a number of their neighborhoods are much bigger or much smaller than both the census block groups and tracts, as well as the neighborhoods as defined by CDCs. In addition, not all of the TCAD observations included the neighborhood code, and the neighborhood could not be identified for several of the CDC developments.

Difference-in-Differences Models

$$\ln MVal = \beta_0 + \alpha_j H_j + \beta_1 IN_Tr_93 + \beta_2 IN_Tr_00 + \beta_3 OUT_Tr_00 + e$$

$$\ln MVal = \beta_0 + \alpha_j H_j + \beta_1 IN_BG_93 + \beta_2 IN_BG_00 + \beta_3 OUT_BG_00 + e$$

$$\ln MVal = \beta_0 + \alpha_j H_j + \lambda_h Tracts93_h + \delta_k Tracts00_k + \beta_1 OUT_Tr_00 + e$$

(H is the vector of housing characteristics and locational variables in the basic hedonic model)

As with the basic hedonic model, each model above was run with data for the entire city, data for the seven zip code area, and data for the three zip code area. The results for the variables of interest are presented in the analysis section. All of the relevant variables are significant, although this may partly be due to the large number of observations. Also, all of the models have sufficiently high R^2 values.

Data

CDC Data

The objective of collecting the CDC data was to identify all affordable housing units in Austin built by CDCs prior to 2001. The first step in the data collection process was to identify all CDCs in Austin. Most of the CDCs were identified with the assistance of the Texas Association of Community Development Corporations' (TACDC) contact database.¹⁶ At least one CDC, Empyrean Corporation, was identified through online searches for CDCs in Austin. These CDCs were also contacted by email or phone, and a biannual production survey TACDC sends to all CDCs in Texas was also used, to determine if they had produced any affordable housing prior to the end of 2000.

Twenty-two CDCs or other nonprofit housing providers were identified that have existed in Austin at some point in the past twenty years. Of these 22 CDCs, nine produced new housing or conducted major rehabilitations on housing prior to 2001. Two additional CDCs may have produced housing prior to 2001, but they are no longer in existence. Three organizations that are more accurately area-wide nonprofit housing providers as opposed to neighborhood-based CDCs, Austin Habitat for Humanity, Foundation Communities, and East Austin Economic Development Corporation (EAEDC), were included since they are nonprofit housing producers and produced housing in low-income neighborhoods in Austin. And finally, two organizations that rehabilitated a limited amount of housing specifically for a target population before 2001 were excluded because of the specialized nature of their production (no general housing for low-income families). These were United Cerebral Palsy of Texas, who rehabilitated apartment complexes for disabled people, and Community Partnership for the Homeless, who also rehabilitated housing for transitioning homeless people. These organizations were excluded since not only did they rehabilitate limited and concentrated developments, but also because housing for different populations may have a very different impact on neighboring housing.

Some of the CDCs that are included produced a few housing units for a special population, but the majority of the housing developments were for low-income residents in general.

A short survey was developed to collect information and was mailed to all the CDCs who indicated they had produced housing in Austin prior to 2001, as well as those CDCs who could not be contacted. The surveys collected data on all affordable housing the CDC had produced prior to 2001, including the address, the type of housing (single-family house, duplex, or multifamily apartment complex), and owner status (sold to low-income owner or rented), and if the developments were produced for a special population. The year built, type of housing, and owner status was verified, when possible, using TCAD's online appraisal roll.

For two CDCs who did not respond to the survey but had indicated they produced housing before 2001, information was collected from TCAD's appraisal roll and a list of houses produced by Community Housing Development Organizations (CHDOs) obtained from the City of Austin's Neighborhood Housing and Community Development department. Blackshear CDC is owner of all of their rehabilitated houses, so information about these houses was obtained by searching the TCAD rolls for properties owned by Blackshear CDC and using the deed dates as an estimate of when the rehabilitations were completed. EAEDC also did not respond, but a list of houses built by Community Housing Development Organizations (CHDOs) was obtained from the City of Austin, which included a number of houses built by EAEDC. Based on both organization's responses to TACDC's 2004 and 2002 production surveys, the data obtained from these two sources includes most production by the two groups. However, due to the fact that this information was not verified by the CDCs, there is an increased chance of inaccuracies and omissions.

All of the CDC developments were geocoded using ArcGIS, and matched to an address-point shapefile and a street-address shapefile from the City of Austin's GIS website.¹⁷ Once the properties were geocoded, zip codes were assigned to each property based on a City of Austin zip code shapefile¹⁸ and census tracts and block

groups were assigned based on ESRI's shapefiles for U.S. Census Bureau's 2000 data.¹⁹ It also allowed for a visual analysis of the data and the selection of the different areas over which to focus the study and possible divisions of the study area.

CDCs in Austin built or rehabilitated a total of 310 single family houses, 16 duplexes, and one apartment complex before the end of 2000. Table 4.2 shows the type and amount of production by nonprofit housing organization. The majority of production is in the East Austin area, with the highest level of production in zip codes 78702, 78721, 78724, and 78741. The production is predominantly in some of the lowest income sections of the city, but not in every low-income neighborhood, and a few productions are in relatively higher income areas. Some of the production is spread throughout census tracts or zip codes, while in other areas a CDC produced entire sections of the neighborhood. Some of these differences are due to the areas that are targeted, with more scattered production occurring in older neighborhoods, while new neighborhoods allow for concentrated building.

**Table 4.2
CDC Production**

CDC	Houses	Duplexes	Apartment Complexes
American Youthworks	51	2	
Anderson CDC	25		
Austin Habitat for Humanity	98		
Blackland CDC	8	6	*one house has 6 units
Blackshear Neighborhood Development Corp.	5	2	
East Austin Economic Development Corp.	6		
Foundation Communities			1 (200 units)
Guadalupe Neighborhood Development Corp.	27	6	
Rites of Passage Development Inc.	90		

Source: CDC production in Austin, TX before 2001. Surveys, email correspondence, and telephone interviews with Austin CDCs and Randy Hughes of SDC Austin Communities; Travis Central Appraisal District's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>; and a list of CHDO production in Austin after 1995 obtained from the City of Austin, Neighborhood Housing and Community Development Department.

Tax Appraisal Data

The tax assessed value and hedonic variables were obtained from the local appraisal district, TCAD. The 2000 appraisal roll was used to obtain the available hedonic variables and the market value for 2000. Properties that were not residential and not in the City of Austin (since the dataset was for Travis County) were eliminated, and all properties except for single family houses were removed to simplify the hedonic model. All properties with missing information, about four percent of the dataset, were removed since they could not be used. The properties were geocoded using ArcView, and matched to an address-point shapefile and a street-address shapefile from the City of Austin's GIS website.²⁰ As with the CDC data, geocoding the data allowed the properties to be assigned a zip code based on a City of Austin zip code shapefile;²¹ and census tracts and block groups from ESRI's shapefiles for U.S. Census Bureau's 2000 data;²² and x and y coordinates (a measure of east, west, north, and south from the anchor point of the projected map) generated in the geocoding process. This information was then exported to use in the regression analysis. Records with more than one building on a lot, with any additions or major improvements to the property after 1993 that were recorded in the appraisal rolls, without a matching property in the 1993 dataset, or that could not be geocoded, as well as all CDC-produced affordable housing were removed from the dataset. There were 99,001 records remaining after these adjustments to the data. Each property was coded based on a number of variables for use in the model below. Finally, the house variables were linked to the 1993 market values.

Conclusion

The methodology presented in this chapter was the result of a review of methodologies used by similar studies, but was adapted based on the available data for Austin. The models appear to be robust and a good fit for the data. Also, an effort was made to collect as much information as possible on affordable housing

production in Austin, and to weed out any TCAD records that were incomplete. The results of the various models are presented in the following chapter, and the implications of the results are discussed.

NOTES

¹ John Accordino et al., “The Impacts of Targeted Public and Nonprofit Investment on Neighborhood Development,” (Richmond, VA, Community Affairs Office of the Federal Reserve Bank of Richmond, 2005) p. 22. Online. Available:

http://www.richmondfed.org/community_affairs/topical_essays_and_resources/reports/nib_research.cfm. Accessed: March 2, 2006.

² The TCAD data was purchased with financial assistance from the LBJ School of Public Affairs and my employer, the Texas Association of Community Development Corporations.

³ Texas Comptroller of Public Accounts, “Property Appraisal,” *Window on State Government*. Online. Available: <http://www.window.state.tx.us/taxinfo/proptax/prptyapp.html>. Accessed: March 13, 2006.

⁴ Damodar N. Gujarati, *Basic Econometrics*, 4th edition (New York, NY: McGraw Hill, 2003), p. 528.

⁵ All of the following studies discuss the potential of selection bias: Accordino et al., 2004; Galster et al., 2004; Schill et al., 2002; Smith, 2003.

⁶ Brent C. Smith, “The Impact of Community Development Corporations on Neighborhood Housing Markets: Modeling appreciation,” *Urban Affairs Review*, vol. 39, no. 2 (November 2003), p. 199. Online. Available: Sage Publications, <http://www.sagepub.com>. Accessed: July 12, 2005.

⁷ I ran the model with the age at the time of assessment, the age squared at the time of assessment to allow a non-linear trend, but age led to a higher R^2

⁸ Ayse Can, “The Measurement of Neighborhood Dynamics in Urban House Prices,” *Economic Geography*, vol. 66, no. 3 (July 1990), p. 262. Online. Available: JSTOR, <http://www.jstor.org>. Accessed: June 27, 2005.

⁹ I was unable to obtain a description of the class codes in the appraisal rolls, which is where information on the exterior of the houses is included.

¹⁰ I calculated the distance using the measured east/west north/south distance from the center of the city, and calculated the hypotenuse using the Pythagorean Theorem.

¹¹ Accordino et al., “The Impacts of Targeted Public and Nonprofit Investment,” p. 30.

¹² Estimating the model with different datasets and showing that the estimated coefficients vary little with these different datasets indicates that the model is robust, that it gives similar results regardless of

the data used, which produces greater confidence in the model and is an important indicator the model is estimated in an appropriate manner.

¹³ The antilog of the coefficients of dummy variables gives the median price associated with the house characteristic the dummy variable represents.

¹⁴ Robert Halvorsen and Raymond Palmquist, "The Interpretation of Dummy Variables in Semilogarithmic Equations," *The American Economic Review*, vol. 70, no. 3 (June, 1980), p. 474. Online. Available: JSTOR, <http://www.jstor.org/content/lib.utexas.edu:2048/>. Accessed: March 25, 2006.

¹⁵ Spatial heterogeneity is a common problem with cross-sectional datasets since the values of some of the independent variables will vary with the physical location.

¹⁶ I had access to TACDCs database as an intern at the organization.

¹⁷ City of Austin, "Address Point" GIS Data Set and "Street Centerline-Address Match Utility" GIS Data Set. Online. Available: ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html. Accessed: October 2005.

¹⁸ City of Austin, "Zip code" GIS Data Set. Online. Available: ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html. Accessed: October 2005.

¹⁹ ESRI Geography Network, "Census Tracts 2000" and "Block Groups 2000," *Census TIGER/Line 2000 Data*. Online. Available: <http://www.geographynetwork.com/freeresources.html>. Accessed: October 2005.

²⁰ City of Austin, "Address Point" GIS Data Set and "Street Centerline-Address Match Utility" GIS Data Set (online).

²¹ City of Austin, "Zip code" GIS Data Set (online).

²² ESRI Geography Network, "Census Tracts 2000" and "Block Groups 2000" (online).

Chapter 5. Analysis

An analysis of the data will reveal whether areas with CDC-produced affordable housing experienced an increase in market values of housing greater than the increase in surrounding comparison areas, holding many factors constant. This chapter presents the results of the regression analysis for the models which compare areas with CDC-produced affordable housing and those without. The differences in assessed market values in 1993 and 2000 are compared for these areas, using datasets with increasingly focused comparison areas. The hypothesis is that CDC target areas experienced a greater increase in the market value of houses between 1993 and 2000, although this effect may differ depending on whether the comparison area is other low-income areas or the entire city.

Tract Level Results

The first model examines the difference between census tracts with more than one CDC development and those without more than one. Using an equation recommended by Halvorsen and Palmquist,¹ the coefficients can be interpreted as the semielasticity – the percentage change in the market value of the house related to the variable in question. The results for the variables of interest for the tract level model run with data for the entire city, for the seven zip code area, and for the three zip code area are presented in Table 5.1.

Table 5.1
Tract Level Model and Regression Results

$$\ln MVal = \beta_0 + \alpha_j H_j + \gamma_m Z_m + \beta_1 IN_Tr_93 + \beta_2 IN_Tr_00 + \beta_3 OUT_Tr_00 + e$$

	1993 Parameter Estimate	2000 Parameter Estimate	Change	Semielasticity 100*(e ^(change) - 1)
Entire City				
Out of Tract	0	0.62285	0.62285	86.42
In Tract	-0.51396	0.41840	0.93236	154.05
Seven Zip Code				
Out of Tract	0	0.89731	0.89731	145.3
In Tract	-0.04691	0.94722	0.99413	170.24
Three Zip Code				
Out of Tract	0	1.09099	1.09099	197.72
In Tract	0.07936	1.13781	1.05845	188.19

In 1993, when compared to the entire city and to the seven zip code low-income area, the coefficient for the variable indicating a property is in a CDC tract reveals that, holding everything else constant, the effect of being in a census tract with CDC production (before most of the production) lowers the market value of houses compared to the outlying area. When data for the three zip code area is used, however, the coefficient for the variable indicating a house is in a CDC-targeted tract, shows that market values in these tracts are higher than the comparison areas. It is possible that the three zip code area has lower house values than the larger seven zip code area, and that the census tracts targeted within the three zip code area indeed had higher house values before any CDC investment. Another possible explanation is that CDC-produced affordable housing units built in this area prior to 1993, of which there were a number, had already impacted the house values in the targeted census tracts.

In 2000, the opposite is true. With data for the entire city and for the seven zip code area, the coefficient for the variable indicating a house is in a CDC tract

shows that market values are higher in CDC target areas than in the comparison areas. In the three zip code area, however, despite the fact that the values were higher in the CDC tracts in 1993, the values are lower in these CDC tracts in 2000. Splitting the tracts up so they can change individually, as is done in a following section, should help determine why the three zip code area does not follow the same trend as the larger areas.

The semielasticity of the change between 1993 and 2000, which can be interpreted as the percent change in market values attributed to the variable, confirms these outcomes. In the datasets for the entire city and the seven zip code area, the percent change in market values is higher than in the comparison area. The percent change in market values is slightly lower in the three zip code area. These results show that there is a statistically significant difference between the tracts targeted by CDCs and those not targeted.

Block Group Level Results

A model was also estimated that examines the impact at the census block group level. It was expected that the results would be very similar to the results at the census level. Examining the change at different levels can help prove the robustness of the model and will allow the data to vary across a smaller area than a census tract and therefore may reveal variation within the tracts. The results of the model, run with data for the entire city, for the seven zip code area, and for the three zip code area, are presented in Table 5.2.

Table 5.2
Block Group Level Model and Regression Results

$$\ln MVal = \beta_0 + \alpha_j H_j + \gamma_m Z_m + \beta_1 IN_BG_93 + \beta_2 IN_BG_00 + \beta_3 OUT_BG_00 + e$$

	1993 Parameter Estimate	2000 Parameter Estimate	Change	Semielasticity 100*(e ^(change) - 1)
Entire City				
Out of Block Grp	0	0.63323	0.63323	88.37
In Block Group	-0.55435	0.42267	0.97702	165.65
Seven Zip Code				
Out of Block Grp	0	0.90885	0.90885	148.15
In Block Group	-0.14783	0.88695	1.03478	181.45
Three Zip Code				
Out of Block Grp	0	1.05948	1.05948	188.49
In Block Group	-0.01495	1.06076	1.07571	193.21

The results at the block group level are very similar to the results at the tract level, but the difference between market values of houses in and out of the of the block groups is slightly larger at this level. Interestingly, the change in the three zip code area is greater in block groups with CDC production than in block groups without CDC production, while at the tract level the change in CDC tracts was not greater than the change outside of these tracts.

Individual Tracts Results

Finally, a model was estimated with a variable for each census tract with more than one CDC unit, to allow the change in individual tracts to vary. This model reveals if any tracts did not experience change greater than the comparison area, and shows which tracts experienced the greatest amount of change. The results of this model, run with data for the seven zip code area only, are presented in Table 5.3.

Table 5.3
Individual Tract Model and Regression Results

$$\ln MVal = \beta_0 + \alpha_j H_j + \gamma_m Z_m + \lambda_h Tracts93_h + \delta_k Tracts00_k + \beta_1 OUT_Tr_00 + e$$

	1993 Parameter Estimate	2000 Parameter Estimate	change	Semielasticity 100*(e ^(change) - 1)	Tract Change - Out of Tract Change
Out of Tract	0	0.90969	0.90969	148.36	
Tract 4.02	0.10383	1.20791	1.10408	201.64	53.29
Tract 8.02	-0.13320	0.74472	0.87792	140.59	-7.77
Tract 8.04	-0.25525	0.66889	0.92414	151.97	3.61
Tract 9.01	-0.56919	0.75478	1.32397	275.83	127.48
Tract 9.02	-0.13784	0.92426	1.0621	189.24	40.89
Tract 10.00	-0.07831	1.14179	1.2201	238.75	90.4
Tract 18.04	-0.14212	0.68182	0.82394	127.95	-20.41
Tract 21.09	0.02629	1.02172	0.99543	170.59	22.23
Tract 21.10	-0.22538	1.06371	1.28909	262.95	114.59
Tract 22.02	0.03666	1.00373	0.96707	163.02	14.67
Tract 23.11	-0.02474	0.87804	0.90278	146.65	-1.71
Tract 23.12	-0.02922	0.90074	0.92996	153.44	5.09
Tract 24.20	0.23759	0.93241	0.69482	100.33	-48.02

To help identify the reasons for the differing levels of change in the tracts, Table 5.4 contains the type of production by census tract as well as information about when the units were built or rehabilitated. Also, three maps are included at the end of the chapter for a visual reference: Figure 5.1 is a map showing the labeled census tracts, Figure 5.2 shows CDC production within those tracts, and Figure 5.3 is a map of the information presented above in Table 5.3.

Table 5.4
CDC Production by Census Tract

Tract	CDC Units	House	Duplex	New	Rehab	Owner	Rental	Year Range	Avg Year	Median Year
4.02	14	7	6	4	9	0	14	86-98	1991.3	1992
8.02	21	21	0	20	1	20	1	88-00	1993.7	1992
8.04	40	39	1	38	2	34	6	84-99	1996.7	1997.5
9.01	32	26	6	21	11	18	14	84-99	1989	1990
9.02	7	7	0	5	2	5	2	90-00	1996.6	1997
10.00	7	7	0	5	2	5	2	94-00	1996.2	1997
18.04	8	8	0	7	1	8	0	95-00	1998.8	2000
21.09	9	9	0	9	0	9	0	97-00	1998	1997
21.10	41	39	2	40	1	39	2	87-00	1997.9	1998
22.02	90	90	0	90	0	90	0	95-97	1995.8	1996
23.11	16	16	0	16	0	16	0	95-00	1995.9	1995
23.12	27	27	0	27	0	27	0	96-00	1998.9	1999
24.20	4	4	0	4	0	4	0	99-00	1999.3	1999

Source: CDC production in Austin, TX before 2001. Surveys, email correspondence, and telephone interviews with Austin CDCs and Randy Hughes of SDC Austin Communities; Travis Central Appraisal District's online 2006 appraisal rolls, available at: <http://www.traviscad.org/>; and a list of CHDO production in Austin after 1995 obtained from the City of Austin, Neighborhood Housing and Community Development Department.

When the effects are allowed to vary by tract, it can be seen that the change between 1993 and 2000 varies greatly depending on the tract in question. There are four tracts where the percent change in market value is less than the change in the rest of the seven zip code area, tract 8.02, tract 18.04, tract 23.11, and tract 24.20.

Tract 24.20, containing only four houses built by American Youthworks, has the smallest percent change from 1993 to 2000. This tract not only has the fewest number of CDC-produced affordable housing units, but these houses were also all built in 1999 or 2000. While a new house may immediately impact the surrounding area, it is also possible that the impact would not occur immediately, but would occur over a number of years after the construction. Also, even if the new construction immediately impacts the house sales in the area, it would still have a delayed impact on the assessed market value due to the way these values are assessed (using sales

from the previous year in the calculation of the present year value). Therefore, it would make sense that this tract would have little or no change in values. This tract is also much further south than the other tracts, which could also help explain why the change in this tract is so different than the comparison area and the other CDC targeted census tracts.

The tract with the next lowest percent change is tract 18.04. There were eight houses built in this tract by Austin Habitat for Humanity (Austin Habitat), and while there are three other tracts with only seven to nine CDC units, most of the houses in tract 18.04 were built in 2000. Once again, since most of the construction occurred so close to the cut-off year, an impact on market values in the area should not be expected. In addition, this tract is further northwest than any of the other tracts, and is the second most removed from the other tracts (after tract 24.20, discussed above) which could be partly accountable for the lower change compared with the other CDC-targeted tracts and the comparison area.

The other two tracts with a lower percent change in market values than the rest of the low-income comparison area are not as easy to explain. Tract 8.02 has 21 houses, all but one new construction and owner-occupied, and a median age built in 1992. All but three of the houses were built by Austin Habitat. Tract 23.11 has 16 new owner-occupied houses most of which were built in 1995, and all of which were produced by Austin Habitat. When compared to the other tracts, these tracts don't differ consistently from the rest in the number of rehabilitated versus new units, or owner-occupied versus rental units. However, in both of these tracts, most of the houses were built by Austin Habitat, and there was little investment by other CDCs which is not true of the other CDC-targeted tracts.

All of the remaining tracts had a percent change in market values greater than the rest of the seven zip code comparison area. The tracts with the greatest percent change in market value include tract 9.01, tract 21.10, tract 10.00, tract 4.02 and tract 9.02. Tract 9.01, with the highest change, is in the center of the area just east of downtown. It has 32 CDC-produced affordable housing units, mostly houses. Nine

of the units were new houses built by Austin Habitat, two were new houses built by American Youthwork, and twenty-one were a mix houses and duplexes built or rehabilitated by Guadalupe Neighborhood Development Corporation (GNDC). Twenty-two of the units were built in 1993 or earlier. Tract 21.10 has the second highest change, and also has the second highest number of CDC-produced units of all of the tracts. The majority of houses in this tract are new owner-occupied houses built by American Youthworks, and the average year built is 1998. Tract 10.00 is third. It is in a central location, just east of downtown and just north of Town Lake, but has only seven CDC-produced houses, all but one built or rehabilitated by GNDC. It is not as clear why this tract experienced a high percent change in market values relative to other tracts.

While there does not appear to be a direct relationship between the number of CDC-produced affordable housing units in an area and the percent change in market values, the number of units built does appear to impact the change. Also, it does not appear that whether the units were houses or duplexes, new construction or rehabilitation, or owner-occupied or rental units determines the overall change in the census tracts. The average year the units were built also does not explain the change between 1993 and 2000, although if most of the houses were built closer to the cut-off year there appears to be little or no influence. However, it seems that the census tracts with the most production by Austin Habitat and little to no production by another CDC, Tracts 8.02, 18.04, 23.11, and 23.12, are also four out of the five tracts with the least amount of change between 1993 and 2000. It seems there may be a difference between the economic impact of affordable housing produced by area-wide affordable housing providers such as Austin Habitat, and housing produced by true CDCs, which target a more limited area and provide a number of other services.

While it may not be clear exactly what features of the CDC developments contribute to an increase in market values, there is definitely a greater percent change on average within CDC tracts than in the surrounding area. The results of this analysis clearly indicate that CDC investment in low income areas has a positive

impact on the surrounding market values. Since all of the investments were in low-income areas, it is possible that simply improving the existing housing stock may lead to an increase in property values. Also, most of the new construction was infill and either filled an empty lot or replaced a dilapidated house that was torn down for the new construction, both of which improve the overall neighborhood simply by removing the blemish. Despite these factors which may contribute to the economic impact, it is clear that the CDC investment lead to the economic revitalization of the target neighborhoods.

Figure 5.1
Census Tracts

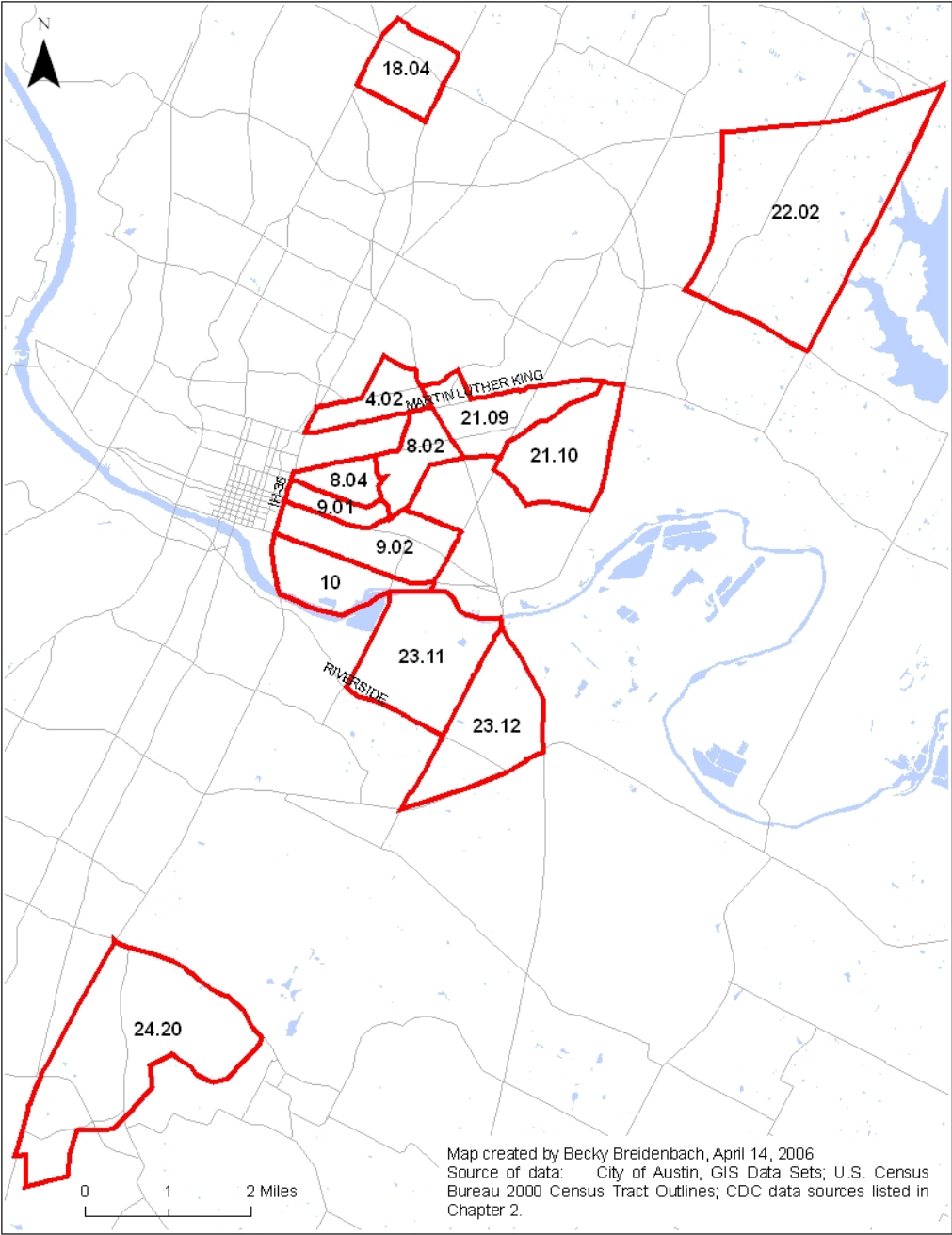


Figure 5.2
Census Tracts with CDC Production

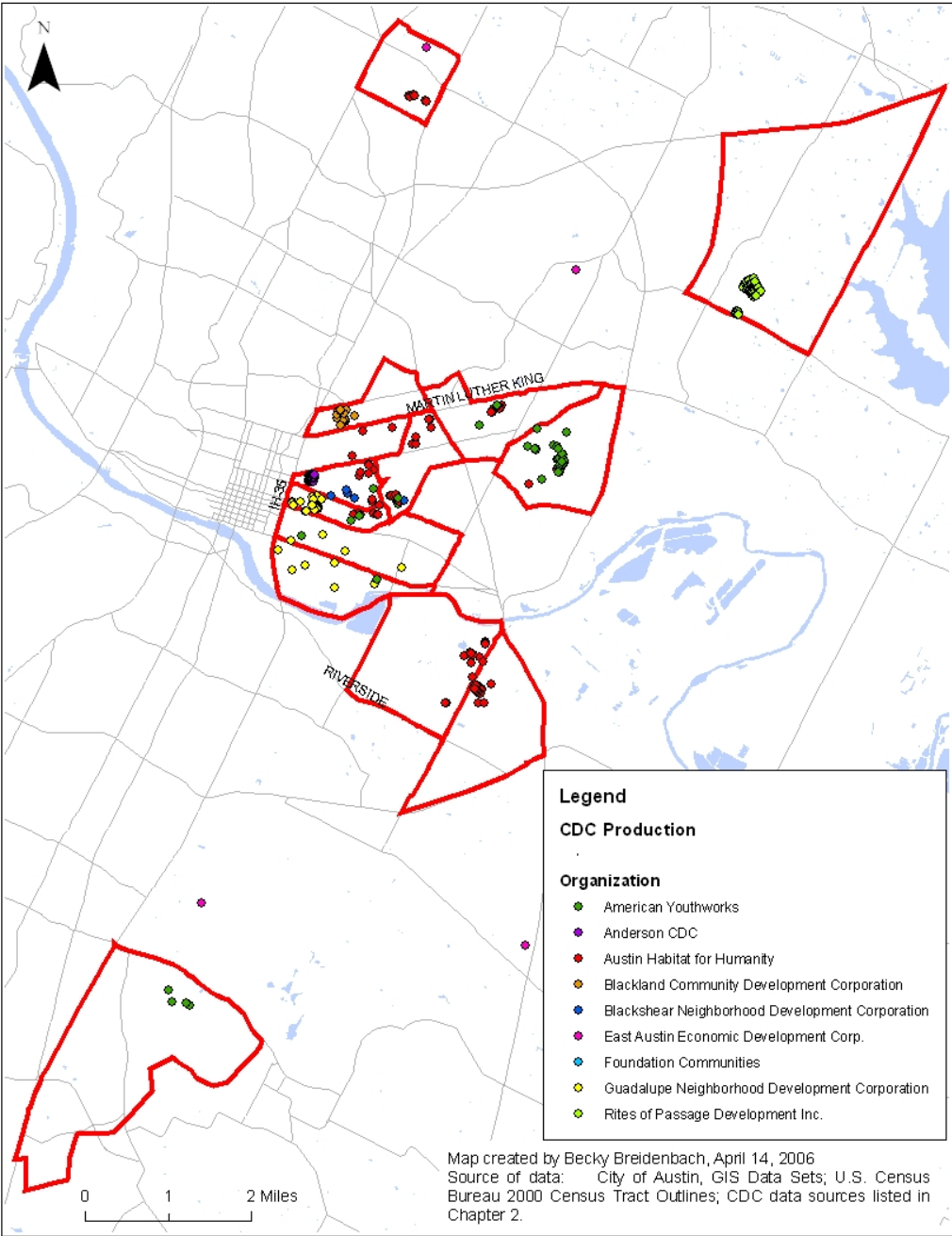
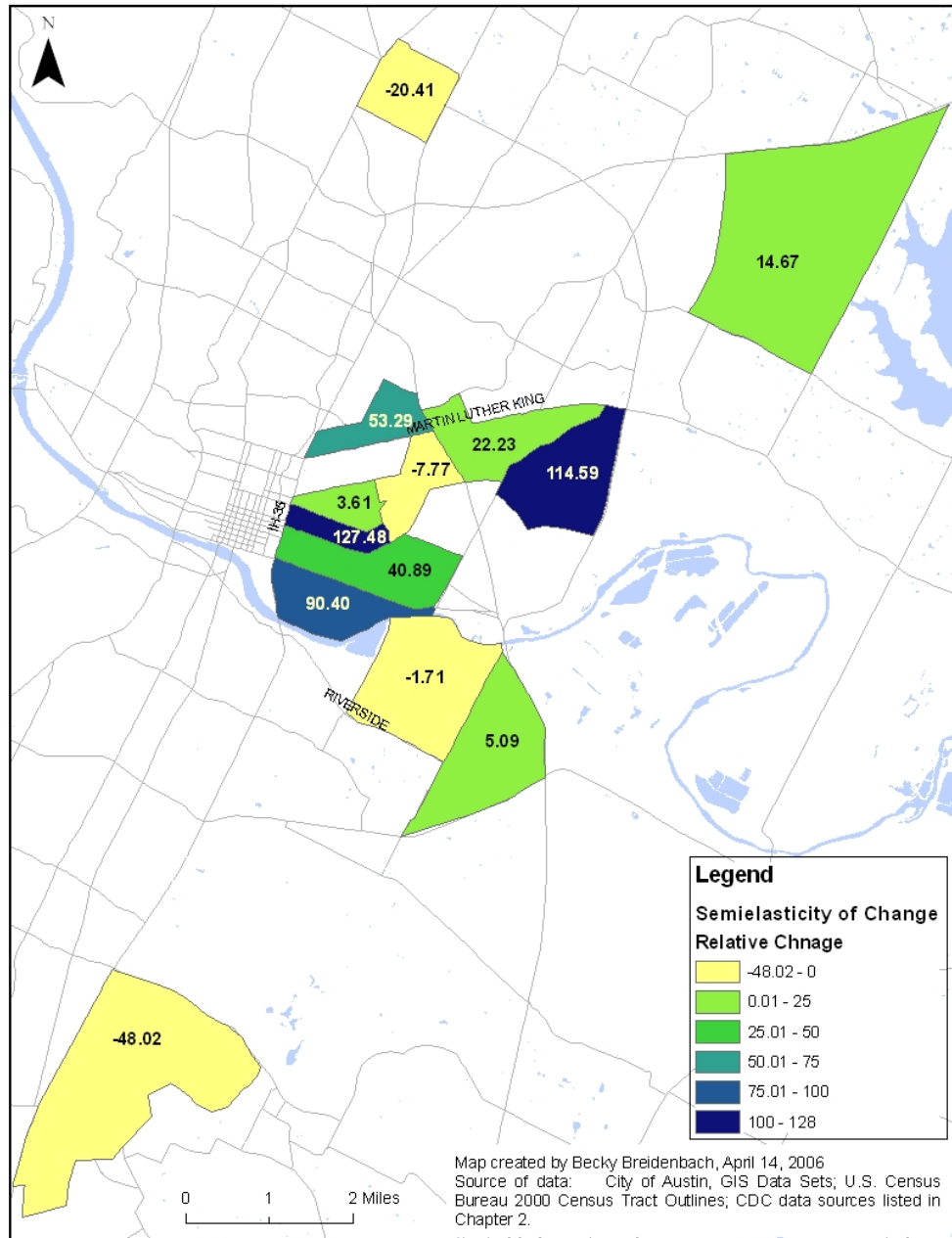


Figure 5.3
CDC Targeted Census Tracts Percent Change Relative to Non-Targeted Tracts



NOTES

¹ The equation, semielasticity = $100 * (e^{(\text{coefficient})} - 1)$, is presented in Robert Halvorsen and Raymond Palmquist, "The Interpretation of Dummy Variables in Semilogarithmic Equations," *The American Economic Review*, vol. 70, no. 3 (June, 1980), p. 474. Online. Available: JSTOR, [http://www.jstor.org.content.lib.utexas.edu:2048/](http://www.jstor.org/content.lib.utexas.edu:2048/). Accessed: March 25, 2006.

Chapter 6. Conclusion

The results of the regression analysis indicate that nonprofit-produced affordable housing in Austin, TX had a positive economic impact on the surrounding neighborhood. Future studies could take this investigation further with a more complex methodology that might provide more insight into the factors that contribute to the impact. Sales data may well lead to a different outcome, and could be used for a study looking at the impacts after 1995. The proximity or ring methodology using sales data could also answer questions about what type of housing and what threshold of investments lead to the greatest impacts. In addition, a broader analysis might investigate further the different circumstances and how they affect the impact of CDC investment. For example, the type of the neighborhood targeted for the project (low-income versus middle-income) could affect the overall impact. Whether the project brings in residents at the same level, or below or above the average income level for the neighborhood could also substantially affect the impact. Also, a moderate-income neighborhood with only one abandoned building may see substantial improvement from the rehabilitation of that one building, whereas rehabilitating only one abandoned building in a low-income area with many dilapidated buildings may have a very little impact. Future studies using these more complex methodologies could contribute significantly to the field.

This study found a statistically significant impact, despite the many barriers that analyses of place-based revitalization efforts typically encounter. Direct causality can seldom be proven except in an experimental setting since it is impossible to control for every environmental factor. In this study, the impact can not be definitively linked to the affordable housing units as there were doubtless many other unseen forces at work. However, this study attempted to control for many of the obvious forces at work. Another issue plaguing this type of study is establishing a counterfactual to show what would have happened in the area if the intervention had

not occurred, which this study accomplishes with the low-income comparison area and by controlling for the impact of the geographic position of the houses with the various location-related variables in the regression model. Using the assessed market value as a proxy for neighborhood health, the regression results present persuasive evidence that the CDC investment contributed to the economic revitalization of the targeted neighborhoods. While this study looks specifically at CDC-produced affordable housing in Austin, TX, the results should help convince opponents and skeptics that CDC-produced affordable housing should not lower the surrounding property values in other areas, and that CDCs provide a valuable service to the community, not only by providing decent, affordable housing, but also by stabilizing and revitalizing their target communities.

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